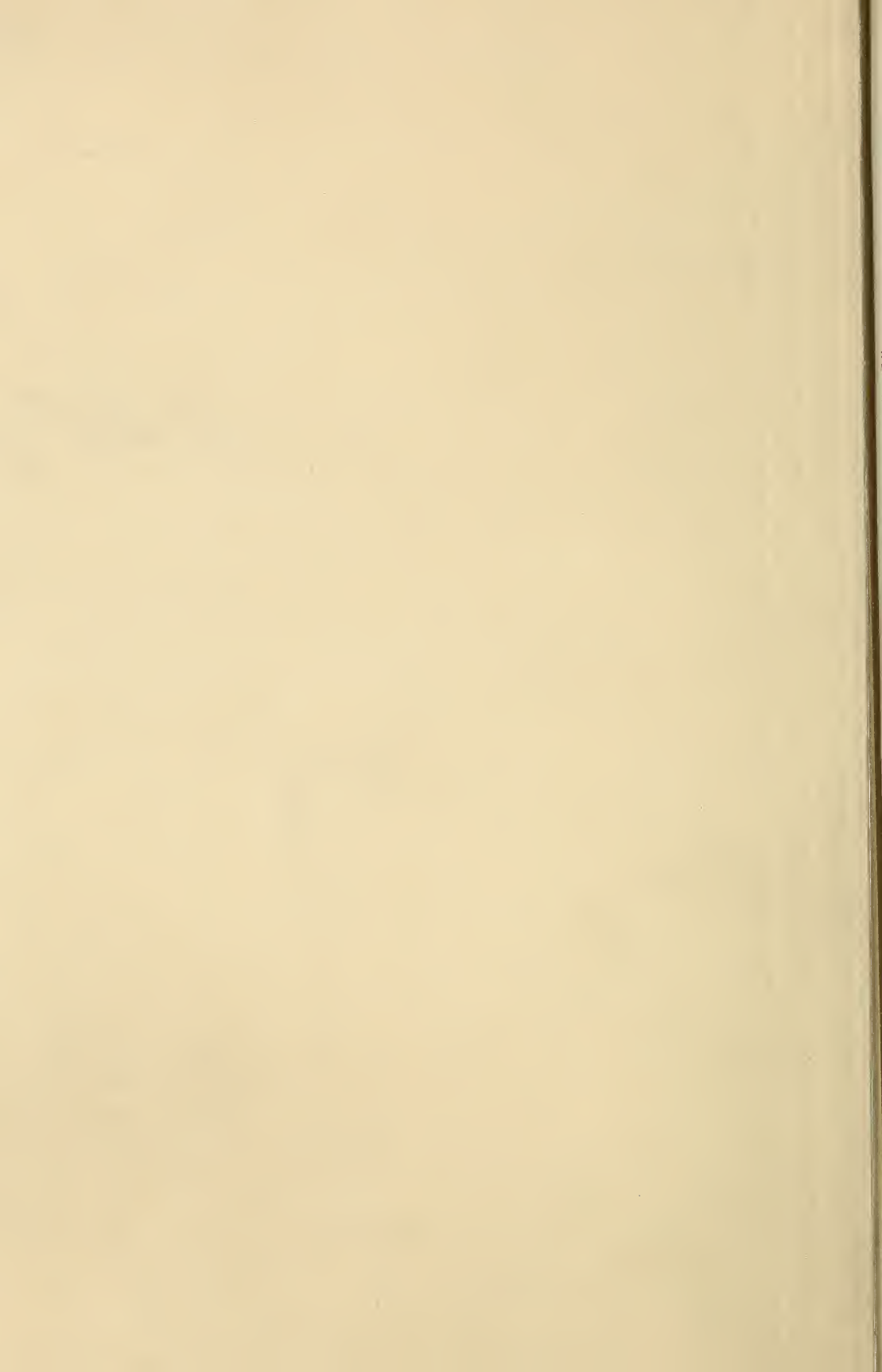


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A JOURNAL
 DEVOTED
 TO BEES
 AND HONEY
 AND HOME
 INTERESTS.

ILLUSTRATED
 SEMI-MONTHLY
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MAR. 1, 1896.

No. 5.

FROM DR. C. C. MILLER.

A MUSEUM of articles pertaining to bee-keeping has been founded in Danzig—the first of the kind in Germany.

M. S. THIBAUT, editor *Le Progres Apicole*, says honey is used in the manufacture of all the best toilet soaps.

F. GREINER speaks on p. 143 as though an egg in a cell was never moved; but we are told that its position is changed every 24 hours.

I NEVER WAS FED by the ravens, but lately I was fed, and well fed, at Ravenswood, at the domicile of the genial editor of *American Bee Journal*.

"UNLESS AT LEAST four or five colonies in the apiary have foul brood, I should not attempt to cure it save by burning," says Doolittle, in *A. B. J.*

CARBONYLE is spoken of very highly in the French journals as a hive paint, although bees can't be put in the hive for a long time after it's painted. Now, what's carbonyle?

THE INITIALS "A. B. J." don't stand for All Bug Juice, nor for A Boot Jack, Andy's Big Jumble, Adieu! Bald Jennie, Any Body's Jaw, A Bad Job, Active Boy Joe, Aunt Betsy's Jig, nor A Beer Jug, but just plain *American Bee Journal*.

I'VE BEEN ANXIOUS for a genuine sample of sweet-clover honey. I got some from Editor York that's reliable. Smells distinctly like sweet-clover seed. I didn't like it much at first, but it grows on acquaintance. I'd like a crop of it.

ELEVEN-YEAR-OLD QUEEN. J. G. A. Wallace reports, in *A. B. J.*, that he put into winter quarters a queen more than 11 years old; kept always in the same hive—never swarmed; right wing clipped angling, so he thinks there can be no mistake.

NORMALLY, no bee less than two weeks old works in the field, and no bee more than three

weeks old does housework; but if necessary a bee five days old can forage, and it can tend baby and build comb when more than six months old.

W. H. YOUNG shipped extracted linden honey to a Chicago commission house, as he relates in *A. B. J.*; and the returns, after deducting for shipping-cans, left him about an even $3\frac{1}{2}$ cents a pound. Better peddle around home at 5 cents. [Yes, indeed.—Ed.]

LINDENS from cuttings! Why didn't you say so before? Of course, A. I. will try it. [They can be produced in that way; but it is cheaper to grow them from seed, so the nurserymen say; but what you do get from cuttings are better varieties.—A. I. R.]

WHEN TALKING about the danger of missing queen-cells in cutting them out, bear in mind that it makes a big difference whether you cut out after natural swarming or after removal of queen without swarming. In the latter case the cells are much harder to find.

THE BEST SURPLUS arrangement is asked for in the question-box of *A. B. J.* T supers have a majority of votes, and wide frames come in second. Section-holders have one vote. [Now, doctor, you needn't chuckle over me, for those sponsors happen to be nearly all T-super men. Eh?—Ed.]

PERSISTENT DIARRHEA. Here's a cure taken from *Le Progres Apicole*: Boil bran in water 20 minutes, and strain through a fine cloth. Sweeten the liquid with honey, a tablespoonful to a pint, and boil ten minutes. Use as a table drink. [I should say that dose would be the very thing that would make it worse.—Ed.]

IF WAX affects the flavor of honey in a few minutes when hot, why may it not affect it when cold, if left long enough in comb that's old enough? [But it doesn't; at least, I never heard of it. Hot wax, we know, will give off its flavor just as the hot beans give off that horrible smell while cooking.—Ed.]

RUNDSCHAU is the title of a new department in *Bienen-Vater*, conducted by Alois Alfonsus, who will *schau rund* and tell what's going on in all parts of the world of bee-keeping. He

says the latest numbers of American bee-journals bring little of interest. [Perhaps to him; but some of our German friends do not agree.—Ed.]

C. DAVENPORT suggests the idea, in *A. B. J.*, that, while it is a good thing to have an apiary protected from the winds, too much protection by high hills may be worse than none. It's so warm in the immediate vicinity that they fly out, but get chilled when they get out into "the cold, cold world."

HERR LEHZEN, editor *Centralblatt*, powdered the outer bees of a cluster that hung below the combs in winter, and in the course of 12 days all the powdered bees had worked their way into the cluster; so he concludes bees shift their position, even in severe freezing weather. [A good experiment, and it helps to prove what we have believed.—Ed.]

TWO QUESTIONS. 1. Of what value is sweet clover as a forage-plant? [Much more value than the average farmer is aware of.—Ed.]

2. Of what value is alfalfa as a honey-plant east of the Mississippi? [Not nearly so much east as west of the river. On this side, the climate and soil are generally not as favorable.—Ed.]

A. I. ROOT, p. 150, advises for the chickens a ragout of cull beans, etc. Nice for the chickens, but rough on the people in the house—smells so. I know, you know. [Yes, and the smell comes up from the cook-room in the basement clear up into the office on the top floor. Lately they have been cooked outdoors, a steam-pipe connecting with the cooker.—Ed.]

THE GERMANS know a lot about bees; but they talk queerly. The queen (*der Weisel*) is "he," and the drone (*die Drone*) is "she." [An old German near us, in praising the skill of his frau, used to say, "Mine wife, he makes fine molasses—yes, he does." Of course, we bought the molasses. Yes, the grammatical gender in the German language is somewhat mixed, according to our ways of speaking.—Ed.]

M. BERTRAND, editor of *Revue*, says: "We have the conviction that the population of our hives often reaches the number of 70,000 or 80,000, and sometimes more. [That would mean fifteen or sixteen pounds in the weight of the bees alone. The largest swarm I ever weighed, and it was a whopper, was seven pounds. Allowing three pounds for the bees left at home, this would make the colony ten pounds. Say, friend B., your colonies must be big ones.—Ed.]

SKYLARK, p. 133, objects to my using acid to cleanse cold wax. I want to explain here why I said so. Some people wouldn't condescend to explain. They would treat Skylark with silent contempt. I'm not that kind. It's better to have a full explanation. Well, the reason I spoke of using acid with cold wax was simply

and solely because I didn't know any better. [Would there were more doctors, editors, and laymen who would thus condescend to explain!—Ed.]

EMPTYING HONEY from five-gallon cans into smaller receptacles is thus given by S. E. Miller in *Progressive*: Set can on table; place a smooth piece of section over the mouth of the can, and hold it tight there; lay the can on one side so it will project four or five inches over edge of table; slide section up like a molasses-gate while an assistant holds under a vessel to be filled; then slide back to stop the flow.

THE CAPACITY of a hive is measured how? by the number of cubic inches contained inside the hive-body, or inside the frames, or by the square inches of comb surface? [It is measured all three ways; but the last mentioned is evidently the best for actual comparison. For instance, the cubic capacity of one large hive with one set of brood-frames might be just the same as one having three sets of frames; but, obviously, there would be more *comb surface*, i. e., breeding-room, in the hive with the single set of frames.—Ed.]



PRICE OF CALIFORNIA HONEY.



The *American Bee Journal* gives us this information by W. D. French, of Foster, Cal.:

I am now informed that the price of honey in San Diego has declined, and they are paying 2½ cents per pound in 60-pound cans, cased. The reason of the recent decline, as stated, was because a certain apiarist had started for town with his load.

An ever watchful eye
Is kept by those who buy;
So when a "soup" is sighted,
They all are much delighted—
Because they're "in the swim."

Now, I question this statement—in fact, deny it in toto. I do not question Mr. French's veracity, for he is a Southern Californian; but I question the veracity of his informant, who may be a Lower California greaser for all I know. I also question the good sense of Mr. French in rushing into print and scattering such rumors broadcast over the land. Does he not know that he is depressing the price of honey by his insane charges against the dealers? Does he not know that, as soon as any dealer on this coast sees this statement, he will say, "Honey is only 2½ cents in San Diego—we can give no more"? When such an article appears in an influential journal, and is read in Chicago, Kansas City, St. Louis, New York,

Boston, Philadelphia, will it not have a powerful influence on the price of honey, especially as San Diego is known to be one of the great bases of supply?

Now, Bro. French, I know you and all bee-keepers on this coast are suffering from the low price of honey and the hard times. We are all in the same boat, and will sink or swim together. But there are harder trials than all these to bear. Take my own case, for example. I am a bee-keeper. I am suffering from all the "stings and arrows of outrageous fortune" that have penetrated your inner man. But besides all these, I have other ills to bear. I have a certain lady's bees to keep on shares. She gets all the honey and swarms, and I get all the work. This division of the profits was made because this lady is very dear to me, and I am perfectly satisfied with the contracts. But I also "bee-keep" her big dog to watch me and see that I carry out the contract to the letter. I don't growl at this, either. But here is the outrage—for his board, clothes, washing, and ironing, I get only 5 per cent of his bark! That is what I kick about. Don't you think, Bro. French, I should have 50 per cent of the bark, or do like some of the commission men—*keep the whole dog?*

PERCOLATED VS. BOILED SYRUP FOR FEEDING BEES.

Query 2.—Of late a great deal has been said about feeding bees sugar and water, equal quantities (for winter stores or to keep them from starving), by means of the crock-and-plate method or some kind of percolating-feeder. Do you think this is better or worse than the plan of boiling syrup to feed?—MINN.

P. H. Elwood.—Worse, much worse.

Dr. C. C. Miller.—Ever so much better.

I cut these questions and answers from the *American Bee Journal*. It will be seen that the answer of Dr. Miller flatly contradicts that of P. H. Elwood. Now, why is this? Here are two eminent apiarists—so high up the ladder of apiculture that they can almost reach me with their hands, who are just as far divided—just as directly opposed to each other as yes and no. If you ask a dozen teamsters how to feed a horse, there will be but a slight difference, if any at all, among them. The dairymen will differ no more about feeding cows. The professional poultry-breeders are likewise unanimous as to the best manner of feeding domestic fowls. In these pursuits it is all plain sailing, because there is no dispute as to feeding the stock, nor of conducting the business connected therewith to a complete success. But when we get among the bees we get into the fog and grope about like blind men. One cries out, "I have found the path; follow me;" another, "No, it is not that way at all; I have found the big road; come on, boys, this way." By the time they nearly all turn to follow him, his "big road" gives out—gets lost in the fog—and they

get scattered out again. Anon there is another cry in a different direction, and the flood tide rolls backward until it wastes its energies in the wide ocean, or breaks upon some rockbound shore.

Now, why should there be such a diversity of opinion as to the feeding of bees? Well, Mr. Editor, I will just tell you the truth—though I am not used to it. We know nothing about bees. Samson, when he took the black-sage honey out of the carcass of the lion, knew just as much about bees as was known up to fifty years ago. It is not fifty years since the "king-bee" died. In fact, he is not all dead yet, but is alive and kicking in many lands and in many parts of our own land.

THE WILD BUCKWHEAT OF CALIFORNIA.

I read with great interest the article of Mr. A. Norton, on "wild buckwheat;" also the accounts of Rambler and others of the large yields in the middle and northern counties of Southern California. In this southern end of the State it yields nothing but pollen, and the bees do not visit it often, even for that—preferring other flowers. But I have had many letters from the middle of the State, from friends who have had large yields from "wild buckwheat." But I could never understand why *our* buckwheat did not yield any honey. It may have come up out of the ground like the young lady's beans—wrong end up, and we failed to reverse it. I am not going to tell friend Norton the genus, species, and family of *our* buckwheat. He may find that out if he can. I don't believe, anyhow, in parading family matters before the public.

THE WORLD OF BEEDOM IS IN COMMOTION.

Controversy, contradiction, and direct opposition are rampant in the apicultural universe. We are on the verge of a great crisis—of actual war. It is not only one great question that divides us, but many. The most dangerous to our peace are "large vs. small hives;" "three vs. five banders;" "breeding out the swarming habit;" "breeding out the stinging habit," and a hundred others of minor importance. On all these questions bee-keepers are divided. War—open war—is inevitable unless there is a court of final resort created whose decision no one will dare to dispute or disobey. This court will consist of a chief justice and two associates, and will hold a term of court every three months or oftener, if business requires it. Now, this is the way that court would riddle out those knotty questions.

"The Supreme Court in Bee-keeping handed down the following opinion to day. It was read in a clear, sonorous, ringing voice by Chief Justice Skylark:

"The plaintiff in this case is right in demanding a larger hive, because a small one won't hold half his bees and honey. On the other hand, the defendant is also right in claiming a

small hive, because there is not enough honey in his country to grease a buckwheat cake. Both prisoners are therefore sentenced to keep their bees in the hive they prefer, and each of them to pay the full expenses of the court. This court doesn't propose to sit here for nothing.

"By the courts.

"SKYLARK, C. J."

Now, Mr. Editor, this is short, sweet, and decisive, and would settle all controversies without appealing to arms.

BOUNTIFUL RAINS IN CALIFORNIA.

We have had bountiful rains; and the prospects for a honey crop, which before were dark and gloomy, are now as bright as they could be at this time of year. But we are not yet out of the woods. It is the *late* rains, in March and April—good soaking rains—that give us the honey. We have now a good foundation for a honey crop, and if we get the late rains we shall make you fellows in the East howl with envy. *You can't help it!*



Echoes this time will treat mostly of the California Bee-keepers' Exchange. We wish to echo it around the world that the Exchange is fully organized for business.

It has taken considerable committee work, various meetings and conferences, and there is a world of work to do in the future. But the Exchange is in the hands of persons whose motto is, "We propose to fight it out on this line if it takes all summer and the next summer."

The Exchange is organized under the co-operative State law of 1895. It is not, strictly speaking, a joint-stock company wherein a few can buy up shares and run the organization for their own benefit, but every member who signs the by-laws and contract, and pays \$1.00, and for the first year an assessment of 25 cts. per month, becomes entitled to all rights and privileges, every member having an equal voice in the management.

Persons seeking membership must be honey-producers, and must agree to market their honey through the Exchange; but there is a provision for the sale of honey in the home market.

In addition to the Central Exchange, located in Los Angeles, county exchanges will be organized; and where the counties are large, and the bee-keepers scattered, district exchanges will be organized. The district or township exchanges report to the county exchange, and the county to the Central. The aim is to have

the bee-keepers in touch with each other through the various organizations. This is virtually the plan adopted, and working so successfully in the fruit exchanges.

THE BENEFITS TO BE DERIVED.

The output of the honey crop will be known step by step as the season advances.

Supplies can be purchased in car lots, and at wholesale rates.

Unjust tare on honey packages can be regulated.

Uniform freight rates can be secured.

The seal of the Exchange will give the purchaser confidence in the quality of the honey.

Honey can be sold as per demand, in either large or small packages.

Honey can be put upon the market in a systematic manner, not overstocking one market and leaving another bare.

A more healthful tone in the price is sure to result.

Adulterators will flee with an army of 1000 united California bee-keepers after them.

There are several other benefits, but the above is enough for this time.

DIRECTORS.

W. T. Richardson,	- - -	President.
Geo. W. Brodbeck,	- - -	Vice-pres.
R. B. Herron,	Director for San Bernardino Co.	
G. S. Stubblefield,	" " San Diego	"
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E. A. Honey,	" " Orange	"
J. La Rue,	" " Riverside,	
J. C. McCubbin,	" " Central Cal.	
F. S. Pond,	Director at large.	
J. H. Martin,	" " "	
Treasurer,	Los Angeles National Bank.	
Secretary and General Manager,	H. H. Youngken.	

The directors, with unanimous consent, wisely selected a manager outside the ranks of the fraternity. Mr. Youngken is a thorough business man, a skillful book-keeper, banker, and manager of a building and loan association, and comes with the best of recommendations.

At the age of three days the Exchange numbered about 70 members.

At this writing, county and district organizations are being formed.

Hon. J. M. Hambaugh, late of Illinois, now a resident of Escondido, Cal., presided at one of our sessions.

Prof. A. J. Cook, Pres. of the State Association, was unable to be present. He was quarantined as nurse to his son Bert, who suffered from a severe attack of scarlet fever.

We had one attorney bee keeper to perform the kicking. We all thanked Heaven there was only one.

Three days were consumed in organizing. The bee-men were bound to stay with it, even if it took a month.

The second evening the boys became tired, and Messrs. Herron, Wilder, Kubias (McCubbin), and Squires went to the theater. The Rambler went along to keep the boys quiet. When we returned they had the effrontery to report that they just followed the Rambler to take care of *him*.

Please note that the Rambler (J. H. M.) is put down as director at large. That means that he can spread himself over the whole State.

Note again that we have Mr. Honey as director—nothing like having a sweet and appropriate name in an organization.

Mr. A. H. Naftzger, President of the Southern California Fruit Exchanges and the *Overland Fruit Dispatch*, gave the convention a short address upon methods of organization, etc.

Mr. T. H. B. Chamolin, organizer, and termed the "Father of the Fruit Exchanges," attended all of the sessions, and gave valuable advice upon lines of organization.



SLOVENLINESS IN PUTTING UP COMB HONEY.

A DESERVED SCORING FOR SLIPSHOD PRODUCERS.

By Geo. F. Robbins.

For two years honey has been a blank failure with me. To get some for myself and a few of my customers I have this winter been buying honey that was produced in northern Illinois and Minnesota. But I must say, if all my purchases of honey must be as unsatisfactory as they have been so far I shall not buy very much. Why will bee-keepers be so slipshod in their methods of producing honey, and caring for the same? Or if some such must be obtained, why will they mix it up and send it off with first class honey? I will tell you what kind of stuff I mean. In the two lots of comb honey I have bought this winter I found specimens of the following:

1. Sections in which moth-worms had hatched and begun to work. I wonder how many other buyers found the same thing. I had to cut some of the honey out of the sections, trim it up, and sell it in bulk.

2. Some which showed plainly that a queen had been up in the super. I wonder if the producer did not know that. Any bee-keeper of experience ought to know what that means. Brood had hatched, leaving their cocoons to blacken and toughen the comb, while a section on one side, it may be both, contained a mass of dry pollen.

3. Old partly filled sections of comb had been used. Apparently they had been left on the

hive the season before until fall, been daubed up with propolis, and the comb blackened by water settling upon it and by travel-stain.

4. Some of the honey had granulated in the combs. The producer may not have been aware of that, nor have had any thought that such a thing would occur.

5. A few sections were hardly more than half filled, and some of them but little more than half sealed.

This is a pretty formidable list of faults. Is it possible that any one can send such honey to market without knowing it? If that one does know it, I wonder if he imagines himself in the place of the consumer. Who wants to order home a box of honey to find it wormy, webby, and the surface chewed up? Yet that is no worse than to cut into the honey to find the comb dark and dirty looking, with an especially ugly streak from top to bottom where the edges of the cells had been daubed with propolis, or masses of dry bee-bread, or to find the comb tough and strong.

Such honey, if sent to market at all, should be graded at least third class. To sell it as a first-class article is not honorable, sensible, nor business-like. I am not really harsh or censorious because I speak thus. I simply affirm it as a truth that ought to be taken note of, and that can not be stated in milder terms. That to knowingly sell an inferior article as any thing but an inferior one is dishonorable, all will agree. It is not sensible; for the customer who gets such stuff will be pretty sure to spot the man from whom it came, if he can, and buy no more of him. The consumer may not suffer—*she* is pretty apt to send it back; but in that case the dealer does. At any rate, the producer will be followed up if he can be traced, and suffer the consequences. And it is certainly very unbusiness-like to saw oneself off in that way. Honesty (and quality) are policy in business.

This matter would not be so bad if the party at fault were the only one to suffer. But too often he can not be traced, and neither the consumer nor dealer may know the origin of a lot of honey; hence, not being able to recognize a faulty article, as a connoisseur might be, even when such can be recognized by appearances, and, thinking themselves liable to get hold of some of it, they will be chary of buying at all?

Do you think I give this matter too serious a coloring? No, I do not. I know how you and I are about such things. I admit we would no doubt purchase less of many things than we do if we were to be deterred by the chance of getting a poor article. But I am equally certain that, many times, we do not buy, because of the risk of getting some poor stuff that we do not want, or that is not worth the money. This is especially so whenever any thing of the nature of a luxury is concerned. Luxuries are always

high-priced, and are expected to be correspondingly high in quality. When they are not they cease to be luxuries, and we will not pay the class price for them. Now, nice comb honey is a luxury. Whatever it may become in the future, at present prices it is a luxury, and the fancy quality of no other edible is more easily impaired.

WIDE FRAMES NEXT TO BROOD FRAMES.

It is neither necessary nor profitable to have much such honey to sell. It takes work and trouble, sometimes money, no doubt, to secure the best; but it pays to make the investment. Superlative pains and care are the cost of producing any kind of high-class article that will take desirable rank in its class. Comb honey is eminently a high-class commodity, and none but a superior article is worth raising. The little of inferior stuff we must have only adds, in fact, to the cost of the other, for it does not—or ought not—pay expenses. Hence the less we have of it the better.

I am satisfied, from experience, that it pays me to take the extra pains. I used to try a wide frame of sections at the side of the brood-nest, and also section-frames and brood-frames side by side in the upper story. But the bees would work the old cappings and bits of comb into the new comb, and especially into the cappings. They would do the same thing to a great extent when I used to set the super next to the brood-frames. Bees are especially prone to do this when the flow of nectar is on the decline, or when a few wet days interfere with honey-gathering. In consequence I decided, several years ago, to have all my comb honey built in single-tier cases with a honey-board between the super and the brood-nest. I have used zinc and wooden honey-boards, with beespace above; but better than either is the slatted wood-zinc board. By its aid I get clear white comb, untarnished cappings, with no brood, and seldom a cell of pollen in my section honey. I think bees do not go to work so readily in supers thus fixed. It is now that it pays to have one or two sections filled with comb to use as bait in the first case put on. They offset the hindrance of a honey-board. Of course, I am careful to mark such sections and sell them, usually near home, as "off" honey.

I seldom allow honey to leave my honey-house if it has not been fumigated with brimstone at least twice, except in case of fall honey taken off late in September. I have never known moth-worms to hatch in my honey after that time, although I suspect they did in some of that I bought. I fumigated once, one to two weeks after taking off, and again about two weeks after. This is not a hard thing to do. I sometimes burn the sulphur under a stack of supers as they were taken from the hive. But it does just as well when the honey is packed in a box, to burn it in a pan or similar vessel on

top of the honey with the lid down, provided there is space enough for the slight flame it makes. A lump the size of a walnut is enough for 150 to 200 lbs.

It may be that the honey I found granulating in the combs was some that had been fed back to complete unfinished sections. It seems that such is inclined to candy. Mr. Boardman says, in the December *Review*, that it is much less liable to do so if it is fed pretty soon after it has been gathered, while it is yet new. I should say it would also help if it is pretty well diluted. I have fed back honey a few times, and I have never known any of it to granulate except some that I fed undiluted in September.

Mechanicsburg, Ill.

[See editorial comment elsewhere.—Ed.]

THAT GOVERNMENT BULLETIN ON BEES.

A FEW EXTRACTS FROM THE WORK.

[I have twice before referred to that magnificent little manual of 120 pages, on bees, from the Department of Agriculture, Washington, D. C. One of its striking features are the beautiful engravings, most of them original, scattered here and there through the work. I wrote to the author, Mr. Benton, asking if it would be possible for us to secure electrotypes of some of these engravings. Receiving a favorable response I applied to the Department, and now take pleasure in presenting you some of them.

The first two or three that I shall show you are not striking because of any artistic effect, but because of what they represent. Few of us have had any accurate conception of the relative size of the different varieties of honeybees. Mr. Benton, I think, may be safely counted as our best authority on Eastern races, and what he has to say will be read with interest. On page 12 we find this relating to the East Indian honey-bee, the matter concerning which I copy entire:—Ed.]

THE COMMON EAST INDIAN HONEY-BEE.

(*Apis indica*, Fab.)

The common bee of southern Asia is kept in very limited numbers and with a small degree of profit in earthen jars and sections of hollow trees in portions of the British and Dutch East Indies. They are also found wild, and build when in this state in hollow trees and in rock-clefts. Their combs, composed of hexagonal wax cells, are ranged parallel to each other like those of *A. mellifica*, but the worker brood-cells are smaller than those of our ordinary bees, showing 36 to the square inch of surface instead of 29, while the comb where worker brood is reared, instead of having, like that of *A. mellifica*, a thickness of seven-eighths inch, is but five-eighths inch thick. (Fig. 1.)

The workers.—The bodies of these, three-eighths inch long when empty, measure about one-half inch when dilated with honey. The thorax is covered with brownish hair, and the shield or crescent between the wings is large and yellow. The abdomen is yellow underneath. Above it presents a ringed appearance, the anterior part of each segment being orange yellow, while the posterior part shows bands of brown of greater or less

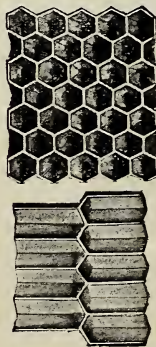


FIG. 1.—Worker-cells of common East Indian honey-bee (*Apis indica*) natural size. Original.

width, and covered with whitish-brown hairs; tip black. They are nimble on foot and on the wing, and active gatherers.

The queens.—The queens are large in proportion to their workers, and are quite prolific; color, leather or dark coppery. **The drones.**—These are only slightly larger than the workers; color, jet-like blue-black, with no yellow, their strong wings showing changing hues like those of wasps.

Manipulations with colonies of these bees are easy to perform if smoke be used; and, though they are more excitable than our common hive bees, this peculiarity does not lead them to sting more, but seems rather to proceed from fear. The sting is also less severe.

Under the rude methods thus far employed in the management of this bee no great yields of honey are obtained, some 10 or 12 pounds having been the most reported from a single hive. It is quite probable that, if imported into this country, it would do more. These bees would no doubt visit many small flowers not frequented by the hive bees we now have, and whose nectar is therefore wasted; but very likely they might not withstand the severe winters of the North unless furnished with such extra protection as would be afforded by quite warm cellars or special repositories.

[On the next page is something exceedingly interesting regarding the smallest honey-bees in the world. Just take a look at the size of the cells as shown in the figure, natural size, and then compare them in your mind's eye with comb in your own apiary. Well, here is what he has to say:—Ed.]

THE TINY EAST INDIAN HONEY-BEE.

(*Apis florea*, Fab.)

This bee, also a native of East India, is the smallest known species of the genus. It builds in the open air, attaching a single comb to a twig of a shrub or small tree. This comb is only about the size of a man's hand, and is exceedingly delicate, there being



Fig. 2.—Worker-cells of tiny East Indian honey-bee (*Apis florea*); natural size. Original.

in their native land, gives us something here that can be relied on.—Ed.]

THE GIANT EAST INDIAN HONEY-BEE.

(*Apis dorsata*, Fab.)

This large bee, which might not be inappropriately styled the Giant East Indian bee, has its home also in the far East—both on the continent of Asia and the adjacent islands. There are probably several varieties, more or less marked, of this species, and very likely *Apis zonata*, Guér., of the Philippine Islands, reported to be even larger than *Apis dorsata*, will prove on further investigation to be only a variety of the latter. All the varieties of these bees build huge combs of very pure wax—often 5 to 6 feet in length and 3 to 4 feet in width, which they attach to overhanging ledges of rocks or to large limbs of lofty trees in the primitive forests or jungles. When attached to limbs of trees they are built singly, and present much the same appearance as those of the tiny East Indian bee, shown in the accompanying figure (Fig. 3). The Giant bee, however, quite in contradistinction

to the other species of *Apis* mentioned here, does not construct larger cells in which to rear drones, these and the workers being produced in cells of the same size. Of these bees—long a sort of myth to the bee-keepers of America and Europe—strange stories have been told. It has been stated that they build their combs horizontally, after the manner of paper-making wasps; that they are so given to wandering as to make it impossible to keep them in hives, and that their ferocity renders them objects greatly to be dreaded. The first real information regarding these points was given by the author. He visited India in 1880-81 for the purpose of obtaining colonies of *Apis dorsata*. These were procured in the jungles, cutting the combs from their original attachments, and it was thus ascertained that (as might have been expected in the case of any species of *Apis*), their combs are always built perpendicularly; also that the colonies placed in frame hives and permitted to fly freely did not desert these habitations, and that, far from being ferocious, these colonies were easily handled by proper precautions, without even the use of smoke. It was also proved by the quantity of honey and wax present that they are good gatherers. The execution at that time of the plan of bringing these bees to the United States was prevented only by severe illness contracted in India.

These large bees would doubtless be able to get honey from flowers whose nectaries are located out of reach of ordinary bees, notably those of the red clover, now visited chiefly by bumble-bees, and which

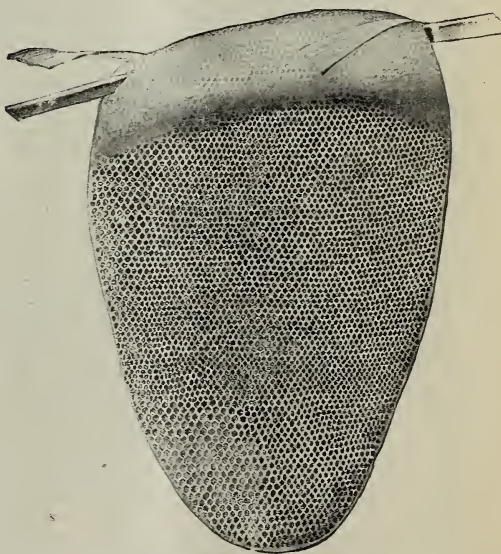


Fig. 3.—Comb of tiny East Indian honey-bee (*Apis florea*); one-third natural size. (Original).

it is thought the East Indian bees might pollinate and cause to produce seed more abundantly. Even if no further utilizable, they might prove an important factor in the production in the Southern States of large quantities of excellent beeswax, now such an expensive article.

[There are many other things regarding the different races of bees that are instructive, but we pass them by and turn to some of those engravings that are both interesting and instructive. The first one of this series is Fig. 62 in the book. It is, perhaps, the best illustration of a comb of sealed and unsealed brood that has ever appeared. The experienced bee-keeper will notice the large number of queen-cells built here and there, especially along the bottom edge. The author writes regarding it:—Ed.]

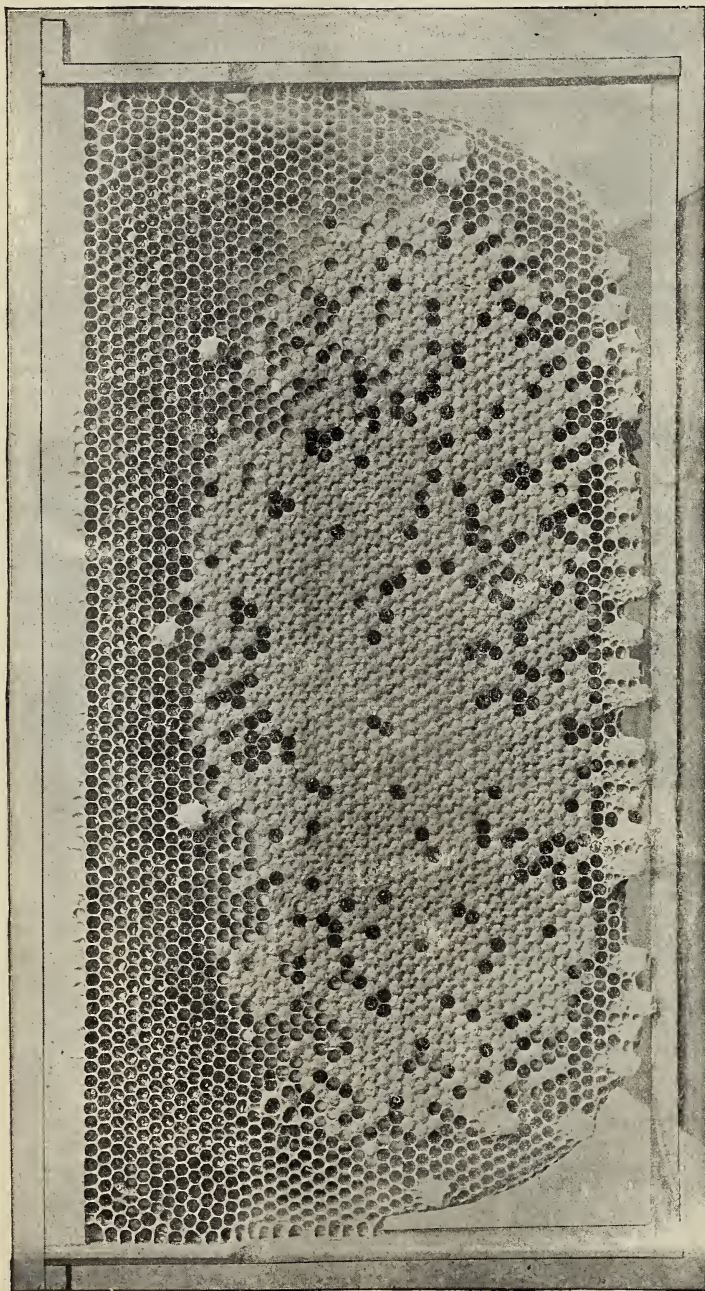
REARING AND INTRODUCING QUEENS.

When bees swarm they generally leave a number of sealed queen-cells in the parent colony. With blacks and Italians there are usually 6 to 10; rarely more than a dozen. Carniolans generally construct

about two dozen, but under favorable conditions can be induced to build 75 to 100 good cells at a time. Fig. 62 represents a comb from a hive of Carniolans which had built at one time 70 queen-cells. Cyprians usually make 30 or 40 queen-cells, but may greatly exceed this number under the best conditions,

is not the case, however; for in general a much larger proportion of the cells formed by these eastern races produce well-developed queens. But in all hives some queen-cells are undersized. This may be because they are located near the bottom or sides, where space for full development is lacking; but in many instances it arises from the fact that they are formed last, and larvae that are really too old to make full-size perfect queens have to be used. These smaller cells are usually smooth on the outside, and show thin walls. In selecting cells, only the large, slightly tapering ones, an inch or more in length, and straight, should be saved. Yet good queens may frequently be obtained from crooked cells, in case the latter are large and extend well into the midrib of the comb.

FIG. 62.—Comb showing worker brood and queen-cells. (Original—from photograph.)



[I can not pass this by without calling the reader's attention to the thick top-bar shown. We have thousands and thousands of just such combs in our yard, and a fair average so far as burr and brace combs is about as shown along the bottom edge of that top-bar where you see the bees have built along the wood. The photograph—and the same is also true of half-tones—can not lie, and I am glad I have this picture as a partial vindication of what I have said all along regarding the value of thick top-bars, in doing away with one of the great nuisances we meet in bee culture.

But let us return again to our book. On page 92 is a fine illustration of a simple and practical method of caging queens. The person shown, I take it, is the author himself. The method of caging is one I have used myself, and is both easy and natural.

On page 96 is as fine an illustration of "handling bees for pleasure and profit" as I have ever seen. Our author speaks of it as follows:]

It very rarely happens that a swarm fails to cluster before leaving, but it may do so if it has

while Syrians nearly always exceed it, sometimes even building as many as 200; and the writer has seen 350 cells constructed at one time by a single colony of bees in Tunis. It might be thought that, where so many were constructed, only a small proportion of them would produce good queens. Such

swarmed before and returned to the hive because the queen failed to accompany it. Spraying water on the leaders, or advance portion of the swarm, from a force-pump, firing a gun among them, or throwing the reflection from a mirror on them will disconcert the absconding swarm and nearly always cause the bees to settle, but the remedy must be at hand and applied instantly.

When a swarm has fairly settled it is best to hive it as soon as possible, lest others coming out may join it, occasioning a loss of queens, and sometimes of bees, or much trouble in separating them. The operation of hiving may appear very formidable to the novice, and attended with great risks; but a little experience will dispel such apprehensions. The bees, before swarming, usually fill their sacs with honey, and are quite peaceable, so that, by the use of a little smoke in hiving, there is seldom any difficulty. But to be doubly sure, the novice should sprinkle sweetened water over the cluster, and at the same time wear a veil to protect his face. Of course, the hive has been ready for some time, and has been standing in the shade so it will not be heated. If the cluster should be on a small limb which can be readily cut off, it can be laid down in front of the new hive, which should have a full-width entrance or be raised up in front. The bees will go trooping in; but, if not fast enough, gentle urging of the rear guard with a feather will hasten matters. If the bees have clustered on a branch which

some other swarm would issue, which they would be likely to join. A few bees flying about or crawling excitedly over the spot from which the main part of the swarm has been removed need not be heeded. They will find their way back to the stand from which they came. As soon as the swarm is fairly within the new hive the latter should be carried to its permanent stand, and well shaded and ventilated.

[There are other fine engravings scattered all through the book, and I am in hopes that every one of our readers will have the pleasure of owning a copy *providing* the powers at Washington will permit a larger edition.—Ed.]



AGE OF BROOD-COMBS.

Question.—How many years can combs be used for brooding-purposes in a hive before they should be renewed? I have some which have been in use four or five years, yet the cells seem very small

Answer.—I have combs in my hives which have been in constant use in the brood-chamber for 20 years; and, while the cells do appear small in looking at them, yet, so far as I can see, it makes no difference in the size of the bees hatching from these cells. A neighbor tells of combs being in use for 40 years, and yet no perceptible difference in the looks of the bees coming from these combs. All bees, when first emerged from the cells, look small; but wait till they are 36 to 48 hours old, and it will be seen that they look altogether different, especially during a honey-flow. Some seem to think that bees do not grow any after they cut out of the cells, but I think

a little observation will satisfy any one that the young bee "plumps out" considerably after it emerges from the cell. Several times during past years I have compelled the bees to rear workers in drone-cells, and, so far as I could discover, using the closest scrutiny, said bees were not a whit larger three days after hatching than were those of the same age hatched from combs from 10 to 20 years old. It is true, that each emerging bee leaves a slight cocoon or lining in the cell; but as this cocoon is much thicker at the base of the cell than at the sides, and so thin at any spot that it is hardly perceptible, no bad results seem to arise



FIG. 65.—Caging a queen for mating. (Original—from photograph.)

it is desirable to preserve, yet where the hive can conveniently be placed directly under the cluster and close to it, the swarm may be shaken into the hive at once (Fig. 67); or the hive may be located on the stand it is to occupy, and the bees shaken into a large basket or into a regular swarm-catcher, and poured in front of the hive. If the cluster is on the body of the tree it will be necessary to place the hive near, and smoke or brush the bees into it. They will go up more readily than down, and may often be dipped with a small tin dipper or a wooden spoon, and poured in front of the hive. Whatever plan be pursued, expedition is advisable; and it is best, before leaving them, to see that nearly all of the bees are inside of the hive; at least, no clusters, however small, should be left on the tree, as the queen might be among those left behind, in which case the swarm would desert the new hive and return to the tree, or go wherever the queen had settled, or, failing to find her, would return to the hive whence they had issued, unless meanwhile

therefrom. It is always safe to use combs as long as they are in good condition, and old combs have the advantage of being better for the bees during winter than new; consequently I have no thoughts of throwing away these 20-year-old combs at present.

OLD POLLEN IN COMBS.

Question.—I have several combs which have old, hard, dry pollen in them. Shall I give

Answer.—I have had combs filled with pollen, or partially so, all through the lower half of them, which was so hard that the bees had to remove the whole of the cell-walls in clearing it out, leaving nothing but the septum; but I do not know that I ever had the combs entirely cut away in this process of removing old pollen. As the septum of the comb remains, cells were built out upon it later on, very much

as foundation is often used in times of a heavy honey-flow, so that the cells were still of worker size, which is not the case when combs are entirely cut away, in which case cells of the drone size are usually built. But of late years, where from any cause pollen has hardened in the cells, I place such combs in tepid water, and allow them to remain thus for a few days, when the pollen will all be soaked soft, and the extractor will generally throw all out. If I do not wish to use the extractor on such combs, I shake what water out I can conveniently, after the soaking process, when the combs are put in sweetened water for a few hours, and then given to the bees, which will clean them up as good as new. I believe that it pays to let the bees clean all such combs; and as to the trouble to the bees, spoken of, I should hardly think this was worth mentioning, especially where the combs were given them during some dull time, or in the absence of a honey-flow.

The questioner speaks about melting these pollen-filled



FIG. 67.—Hiving a swarm. Original—from photograph.

these to the bees to clean, or shall I melt them for wax? I gave a few such combs to the bees last year; but the pollen was so hard that the bees had to tear the combs down and build new, which caused them much trouble and labor.

combs, to obtain wax from them. I wonder if he or any one else has ever tried getting wax from such combs by means of the solar wax-extractor. I have, and I find that, where there is much pollen in combs thus melted, said pol-

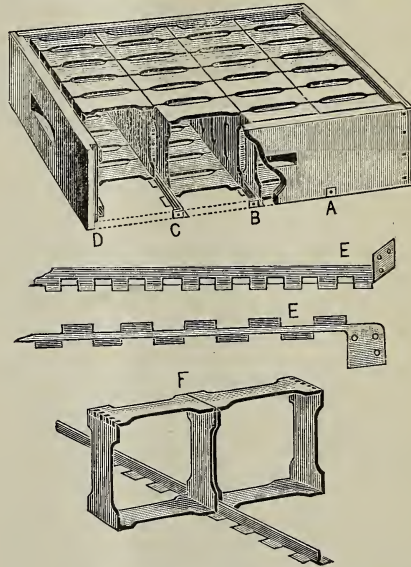
len will absorb all the wax there is in these combs, and quite a little more from combs containing no pollen. Therefore, of late I am careful how any pollen is allowed to go into the solar wax-extractor, as pollen is a great consumer of melted wax. If combs containing pollen are to be rendered for wax, it should be done by means of boiling water, as the water dissolves the pollen as well as to liquefy the wax, thus allowing the wax to escape without being absorbed by the pollen.

DRONE AND WORKER EGGS.

Question.—Can bees rear drones from eggs in worker-cells? or can they make a drone out of a worker egg?

Answer.—Bees can rear drones from eggs in worker-cells, but the eggs must be what are known as "drone eggs." Drone eggs are never laid in worker-cells, except by a failing queen, a drone-laying queen, or what is known as a "fertile worker." A drone-laying queen is a queen which has never mated with a male bee, or a drone. But, so far as my knowledge goes, an unfertile queen always prefers to lay in drone comb in preference to worker comb, she seeming to understand that drones from worker-cells are always dwarfs. Drone eggs are unfertilized, hence it is impossible to produce workers from them, no matter whether they are laid in worker, drone, or queen cells. That bees can rear drones in worker-cells, and workers bees in drone-cells, shows that the size of the cell has nothing to do with the matter of fertilization of the eggs of a queen, as was formerly supposed by some. As to bees making a drone out of a worker egg, I should hardly be willing to say that they can not, although the majority of bee-keepers will tell you they can not. Some claim that the bees do not know one egg from another, except as they find it in a drone or worker cell; but I am not sure but bees do remove the fecundating matter from an egg intended for a worker, for I have many times had drones reared from eggs evidently intended for worker bees, until the queen was removed for sale or otherwise. I have often seen this in nuclei where the queen had been removed, when, had she not been removed, all the brood would have hatched out workers.

writings in "Langstroth Revised," the completion of which is embodied in a super sent you by express to day. When you have thoroughly



ANTHONY'S T SUPER AND NEW STYLE OF T TIN.

I should like to have it, and your opinions of it also, sent to the A. I. Root Co. I wish you could also tell the Roots something about open-sided sections.

I'm going to tell you the best way to put sections in this super, not because you will find it necessary in this particular one, but because you may some day have occasion to deal with such a super improperly made, or with sections of large dimensions, or sections daubed with propolis, and particularly because in the beginning it is well to learn to do the right and better way.

To put sections in this super, run them in rows lengthwise of it; never crosswise. Put the first two sections in the two middle tiers, away from the side of the super, where the tins will press apart, and then slide them against the super's side. Next come the two sections in the end tiers of super. Be sure that their corners nearest to the center of the crate are below the supporting tin, and, with a push on the opposite and upper corner, the section is past the flaring and tightening strip, and will go snugly down to its place. Then come the two middle sections in the next row, etc.

The crate should rest on a table or other flat surface while being filled; and, above all things, never try to crowd the last four sections in the crate if they do not go easy. A dry room will soon narrow swollen sections.

Coleta, Ill., Nov. 21.

[Below is the reply of the Dadants to us.—ED.]

Mr. Root:—The inclosed letter will explain itself. We have received the box, and reshipped



AN OPEN LETTER TO THE DADANTS.

A NEW STYLE OF T TIN.

By A. B. Anthony.

Chas. Dadant & Son:—The most influential source of my thoughts on sections and a "super" for sections has come to me from your

it to you. You are better versed than we are in the section-case business, and better able to pass an opinion, therefore we will not say any thing. We suggested, however, to Anthony that he had better put something behind the outside sections, so the bees could not get in. We prefer sections open three sides to all others, because you can have them either open or closed top, and because in crates like this, for instance, you could put the closed side against the wall and effectually close the section.

Hamilton, Ill.

C. P. DADANT.

[The principal feature of this T super, and one that does not seem to be touched upon by Mr. Anthony himself, is the special form of the T tin itself. It is simply a strip of tin, notched as shown, the upright part of the T being a single sheet of tin. The ordinary T tin, as our readers know, at this point is made up of a fold; and the consequence is, that it crowds the sections a little way apart. Anthony's form of T tin reduces this distance to a minimum, and practically lets the sections come in simple contact, avoiding to a great extent the tendency of sections to become diamond-shaped, as in the ordinary T supers. But the notched or new form of T tin is quite difficult to make, and is not as strong as the ordinary T tin. It holds quite well when the super is full of sections; but I imagine it will not "stand the grief," season after season, when propolis sticks or when the case is empty.—Ed.]

GABUS' CLOSED-END-FRAME HIVE.

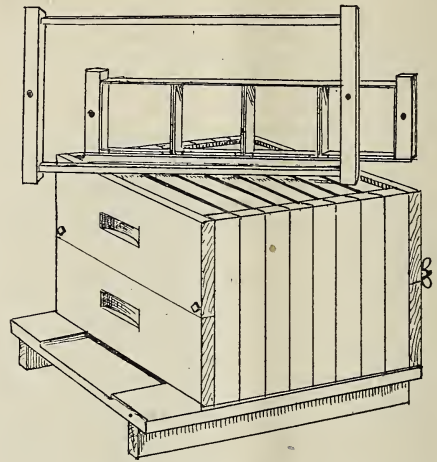
ITS ADVANTAGES, AND WHAT IT WILL ACCOMPLISH.

By E. H. Gabus.

In the accompanying picture, one section-holder full of sections, and one brood-frame, are placed on top of the brood-chamber. The latter is composed of any desired number of brood-frames and two panels held together with a $\frac{1}{4}$ -inch bolt. The frame ends are $\frac{3}{4}$ inch thick, and are pierced with a $\frac{1}{8}$ hole edgewise, and the $\frac{1}{4}$ -inch bolt runs through them all and also the panels. The bolt has a thumb-nut. The section-case is made up in the same manner. The entrance to the hive is cut into the bottom-board. The brood-chamber rests directly on the bottom-board and not on cleats. The brood-chamber is reversible. There is no outside case to this brood-chamber, as there is no need of any. It has a cover like that to the Dovetailed hive, only it is smaller. It contains less lumber than any other hive except a box hive. It is practically a box hive that can be also a movable-frame hive. It has all the advantages of both the box hive and the movable-frame hive. It is the nearest approach to the straw hive for ventilation in wintering.

This hive will accomplish all that is claimed for the Heddon hive, and do it easier and cheaper. As it can be made of any depth it can be a horizontally divisible hive. It is contractible, expandible, and reversible, in a higher degree

than any thing in use now. It is a cheap hive. It is the best hive for migratory bee-keeping. It is easily inverted, and is mostly examined by



inversion, without unsealing the cover. It is the hive for farmers and those who dislike so much manipulation, and who want to handle the hives more and the frames less. It is handy for making nuclei or for dividing. Those who do not like tiering up can add sections at the sides. It can be made of any size desired, without any cutting or waste space or material. These are some of the advantages possessed by the new hive.

Brock, Neb.

[The principle of your hive is much like that of several other closed-end-frame hives, with this one exception: The end-bars are pierced with holes as shown, and a tightening-rod run through. The other forms of this kind of hive usually have the tightening-rods just outside of the end-bars, the panels or side-bars projecting over far enough so that the rods can be let into slots cut into the ends about midway up each side-board. By your plan every thing is made secure, it is true; but I imagine that it would be some little work to push the tightening-rod through those holes, because every frame *must* be brought to an exact alignment. By the other plan the rods are simply slipped into the slots referred to, and one or two twists of the thumb-nuts bring every thing up tight. Your plan, however, has the slight advantage that the sideboards, or panels, do not project over and beyond the length of the frames; but for all that, I think I should prefer the projecting panels.

Mr. Elwood and Mr. Hetherington, of York State, use the Quinby arrangement, which is somewhat similar. Mr. Elwood, at least, told me that tightening-rods were too expensive, and no better than the looped string, which costs really nothing, and can be looped around the hive in a twinkling when the knack is once acquired.

Perhaps I might say to our readers that this kind of hive—that is, closed-end frames and panels—makes the cheapest hive that can be constructed, the two panels taking the place of the hive proper. The end-bars are also the ends of the hive; and all that is required is

side-boards; and these alone, with frames, make up the hive proper.

I have seen hundreds of hives with closed-end frames of this description (i.e., closed-end frames and panels) in a number of different apiaries; and I must say there are a good many nice features about it. The whole hive can be split into perpendicular halves or quarters; and as the bees can propolize only one side of the end-bars, a common penknife will separate the frames. This is no theory, for I have seen it done by Mr. Elwood over and over again, and the bees were hybrids and blacks at that.

Well, there is another advantage yet: When the perpendicular halves are pulled apart, light can shine in from the ends, and one can very often find the queen without so much as lifting the frames up.

For wintering, a light thin shell or cap can be set right over the whole thing. This makes a dead-air space; or if one desires to pack, cushions can be set in, and a cap set over the whole.—ED.]

nate section all drone and all regular; and last season I "kept tab" on 550 sections, and find: The drone sections are finished 13 to 68 hours before the regular, or an average of about 32 hours. In the height of the honey-flow, hours are worth money. I wish some of the older bee-keepers would give us their experience on this point. I will use drone foundation in all my sections hereafter. HARRY DWIGHT.

Friendship, N. Y., Feb. 3.

[At the time your article was published I called for reports; but, if I am correct, none were received. Bees, it is true, seem to prefer, for storage, drone comb; but the trouble, as I then pointed out, was that the queen, not having drone comb in the brood-nest, was quite sure to go into the sections if filled with drone foundation. But this can be overcome by the use of perforated zinc.—ED.]

"STICK TO YOUR HIVE;" A LITTLE GOOD ADVICE; THE HEDDON HIVE; THE HIVE CONTROVERSY SETTLED BY A TEXAN.

I have read the big-hive question through and through, against the little frame, and am glad to see big hives coming out where they should—always ahead. My little hives, the Heddon, my wife is using for plant and flower-boxes. I find them too small for anything in the apiary except ornaments. I have tried, you might say, "all kinds" of hives, to my financial sorrow. I have scattered about and given away over 200 hives of various dimensions in solving the hive question; but I have it solved, and I am proud of it too. I will advise you beginners to abide by some other chap's decision, and not try nor buy more than one kind of hive. Big, little, old, or young, stick to your hive until you can sell honey in carload lots, and then your choice will be worth choosing, and then you can throw away what you have for something you know is better instead of worse.

The hive I am using now, and expect to continue to use, is nothing worse than the ten-frame Dovetailed hive, two to four stories high, though I prefer them three stories; and I can assure you, if you are in a land of milk and honey, that you will have the honey if you will put in 400 or 500 such hives. They require less attention, and are sure to pay for the attention they do get. W. W. SOMERFORD.

Navasota, Tex., Dec. 15.

FRITS IN AMERICA.

Mister A. I. Pee Man, Dear Sir:—Ef you don't got to be a great pee-man like mine selef you don't vas node me; aint dot so? I left der vaterland and come dot ocean over more as a long time ago. I vas to the garten in dem cassel come close by Nye Yorrick. Pooty soon sum gustom house offeetseers dey come on our big poat. By and by, pooty soon gwicky dey vas serching all der peeples and der cloze; den I node some pooty had sumthing stole. Ven dey vas to me come I told dem I vas a goot poy,



USING ONLY STARTERS IN THE BROOD-NEST.

A friend of considerable experience tells me it does not pay to use full sheets of foundation in brood frames. He recommends starters, say about half-sheets; and when a swarm is hived on these starters, the contracting of the brood-nest by means of a division-board to about four frames. After these are drawn down and out, the rest of the frames are to be added one at a time as fast as finished. I tried full sheets last season, and the cost was more than the profit. Besides, the foundation sagged, and the combs are by no means perfect.

If the plan above given is used, and the frames supplied with wire the full width, would not the bees fill the frames with nice straight worker combs, care being taken to set the hives level, so that the frames hang perpendicular?

Vine, O., Jan. 23.

H. M. STUMP.

[The plan you propose, of using only starters, is practiced by some, and in some cases appears to be a success. Similar plans are advocated, notably by Samuel Simmins, England, and W. Z. Hutchinson. Yes, under certain circumstances you will get worker comb, and in other you will not. These are explained in Mr. Hutchinson's Advanced Bee Culture.—ED.]

BEEES BUILDING OUT DRONE FOUNDATION QUICKER THAN WORKER.

I wrote you an article about a year ago, which you published on p. 619, 1894, telling the result of my experience in using drone foundation in the sections. I claimed that, when the regular (or worker) size was used, the bees would not finish it and cap it as soon as they would when drone size was used; and when a starter was used, the bees would change it to drone.

I have experimented by having each alter-

and I don't vas steals noddings; and vat you dinks dey wood not dake my vord for noddings, and dey look at every tings dat I had tied oop in my noze-rag, and ven dey don't find dem goods stole I vas as habby as a clam on a pun-kin vine; don't it? Den dem ooffetseers dell me to go dat shore on. I doos it and stay mit Nye Yorrick a few days, and den I git me a steembote on and come dot horn around to Frisco, and den here I vas come.

I go me out der country in to see mine good frent Philip Spiegel who came frum der vater-land more as a long time ago. Philip ish a grate pee-man yust like yourselef; he has zwei—vat you call 'em? Oh! ya, kolenays, and he got dis year may pe more as a lot of hunny. I buy me some land by Philip's, and some pees got, and now I vas a pig pee-man tu. I bide 2 kolonays, and dig der grount oudt and get 10 more. Aint dot goot? So now I vas 12 got. 1894 vas nix goot, and my pees all go dide except 7; and ven I see dat I vas all proke up, and cride my eys vide open shut. Philip's pees all go dide, and be don't vas in der pee pishness now any more. He says pees ish nix goot. I don't dink dat vay. I vas in it tu mit bote feet, and I dink I vill suckseed. I vas alone by mine selef, and I soon get me a new house made, and den Catarina will der ocean come over, den ve'll got married. Dat Catarina is such a goot girl, and ven we vas got married some day on your wheel get and come and see us. Dat vas all. Goot by. FRITS BRAUN.

San Diego Co., Cal., Dec. 9.

A PLAN FOR TRANSFERRING.

I wish to transfer 40 colonies as follows: During fruit-bloom, remove the hive containing bees from its stand, and place a new hive containing 5 frames of foundation in its place. Drive *all* the bees into the new hive; place a queen-excluding honey-board upon the top of it, and then place the old hives upon top of this. My theory is, that bees will go up into the old hive, and care for brood and eggs; but as the queen can not get above, a majority will remain below and draw out the foundation into comb. In 21 days remove the old hive, and run combs into wax. Can you recommend the plan? Would they be likely to swarm?

Browning, Ill., Feb. 18.

G. A. DYER.

[The plan you speak of for transferring will probably work; but a better way would be to move the old stand to one side a few inches, and, when all the brood was hatched out in the old one, remove it after shaking the bees all off in front of the new one.—ED.]

B. TAYLOR'S COMB-LEVELER A VALUABLE TOOL FOR THE APIARY.

Well, that comb-leveler, that B. Taylor invented, I made one the next day after I saw the cut in GLEANINGS; and as soon as I had sections suitable I went to work and did the nicest job of comb-leveling. It is certainly one of the

best pieces of furniture that the section-honey producer can have. It costs but a few cents to make one, and one can save dollars in foundation by its use, and it makes the comb very nice and clear. Yes, and I have been lending my leveler all around the country to bee-keepers, after they saw how nice my work had been performed; and Bro. Taylor ought to have a vote of thanks for presenting so valuable a present to the bee-fraternity, and I suggest the same.

J. A. GOLDEN.

Reinersville, O., Feb. 7.



E. E. G., Pa.—No one has ever advertised the stingless bees of Mexico or Cuba; in fact, they can not very well be domesticated. They are too much like ordinary flies. We had a little colony of them once, but could do nothing with them; at least, no more than we could do with an ordinary nest of bumble-bees.

J. L. S., Mont.—Snow drifted up against the entrances of hives will do no particular harm. Sometimes, however, after a rain or thaw, the snow melts, runs into the entrances, and freezes. Unless the ice is removed the colony within will die; but ordinary snow does no harm whatever.

You could possibly pour syrup from a height into empty combs, and give the bees the combs. We have done this; but a much more satisfactory way is to give the bees lumps of sugar or syrup direct from the feeder placed directly over the brood-frames. The pepper-box feeder will answer very nicely for this purpose.

S. G., Wash.—You can have a double entrance, as you suggest. As to how the bees will fill the sections in such a case, I can not speak from experience; but for some reason the majority of honey-producers prefer only one entrance. The principal reason, I suspect, is that bees try to get their surplus as far away from the entrance as possible, away from the cold and away from robbers.

W. G. J., N. Y.—The trouble that you speak of, bees building comb between the separators, that is, above and below them, if I understand you, is a little unusual, and can be accounted for only by the possible fact that you may allow the supers to become too much crowded. If you place another super under, just before the one is completed, you will remedy the trouble to some extent. The use of wider separators will also be an advantage, as you suggest.

A. B., O.—I would not advise you to set the bees out, even if they are uneasy. It is too

early yet. Give the cellar good ventilation at night, when it is not too cold, by leaving the doors and windows open, and close up again in the morning. I would hardly advise you to take your bees out before maples come into blossom. Some, however, think it is an advantage to take their bees out early; but better take them out a little too late than too early.

A. C. A., Wis.—If you do not claim that the honey you are selling, bought of another, is of your own raising, I do not see why your customers should object to it providing you stand guarantee as to its purity. Such objection as you find is very unusual indeed. They certainly could not arrest you for selling what you do not produce yourself, unless, perhaps, there should be an ordinance against selling stuff which you have not yourself produced, without a license.

E. T. C., N. Y., desires us to offer a reward to chemists who will discover some chemical which, used in small quantities, will prevent the granulation of extracted honey. The best method I know of is to bring the honey up to 180 degrees, never higher, and seal immediately while hot. Sometimes it will not granulate for two years, and sometimes it will in one year's time or less. I should not like to put any thing into honey for any purpose whatever. I should prefer to leave it just as the bees give it to us.

J. M. W., Cal.—I can give you no particulars in regard to mixing glucose with honey. Such a practice is condemned by all reputable bee-keepers, and I feel sure you would not knowingly desire to do injury to the industry. In the first place, I doubt if you could make it pay on a small scale. Yes, there is a demand for water-white honey; but I think you will find in every case it is pure, genuine sweet, from the flowers. White-sage honey from your State is water-white, and clear and beautiful in color; but glucosed honey is abominable to the taste and injurious to the health.

H. C. S., Fla.—The method of using two starters in one section, as spoken of by B. Taylor in a recent number of *GLEANINGS*, was the one originally advocated, I believe, by Dr. C. C. Miller. He puts in a wide starter at the top of the section and a narrow one at the bottom, the two starters being about $\frac{1}{8}$ or $\frac{1}{4}$ inch apart. The bottom starter should not be much wider than $\frac{1}{2}$ or $\frac{3}{4}$ in., otherwise it will tumble over and only make the matter worse. The object of the bottom starter is to induce the bees to make a continuous comb attachment clear to the bottom of the section. This fills the section out better, and better fits them for shipping.

J. Y. T., N. Y.—It would be impossible to give an exact answer to your question as to the proper size of a honey-tank for two hundred colonies of bees. Much would depend upon the honey-flow, locality, and whether you desired

to store the entire crop; if the latter, the tank would need to hold about one thousand gallons. This would allow about 50 lbs. per colony.

In reply to your second question, an eight-foot windmill, under a good stiff breeze, might run a light power mandrel for a 7-in. circular saw; but a ten or twelve foot would be much better.

B. N. B., Minn.—You can practice uniting as you suggest. If you are not particular about which queen, the bees will destroy one and keep the other. Otherwise you had better destroy or remove the least valuable one.

Japanese buckwheat yields no more honey, but larger and more grain. All buckwheat honey is dark, and all about the same quality.

There are ways of doing something toward the prevention of swarming when running for honey. All these, and more, are set forth in our *A B C of Bee Culture*.

J. S. C., Mich.—I think you misunderstood Mr. Boardman. By unfertilized eggs he meant eggs laid by queens that had not been fertilized; but, as we now know, queens have the power to lay both fertile and unfertile eggs. You will find this matter quite fully explained in *Cheshire's* work, "Bees and Bee-keeping," Vol. I.; also in "The Honey Bee," by Cowan, and in "Dzierzon Theory," which has now come to be accepted as fact. In the end of each egg there is a micropile, or minute hole. Each egg laid for a worker-bee receives through this opening, as it passes from the ovary of the queen, the spermatic fluid; but the eggs for drones do not receive the fluid.

L. C. J., O.—In regard to windbreaks, I would not advise going to the expense of setting out trees of any kind, because it takes so many years for them to mature sufficiently to be of any service. It is true, we have around our apiary a row of tall evergreens; but they have been seventeen years in growing, and it is only for the last three or four years that they have been of much service. They make a perfect windbreak—the very best—but they are very expensive; and by the time they would be of service many an apiarist would be out of the business. As a general rule we would advise the selection of a locality where natural windbreaks may be found. The apiary can often be located in the L that is sometimes formed by the barn and wagonsheds. If, however, there is only one place where the apiary can be located, and that has no windbreak, I would advise putting up a tight board fence, say six or eight feet high, using cedar posts if you can get them. This will last a good many years, and be ready for immediate use.

No, windbreaks do no harm in shutting out summer-breezes. If the bees have sufficient entrance they can create ventilation enough to keep the hive cool, providing they have a little assistance in the way of shade.



WE have received a vigorous protest from Mr. Thaddeus Smith, an old contributor and subscriber, against the idea of petitioning Congress to order an appropriation for printing 100,000 copies of Benton's new book, as proposed by Hon. Geo. E. Hilton. The protest is well worded, and sound in argument; and before bee-keepers go too far, perhaps they had better wait until they see his article. Unfortunately it comes too late for this issue, but it will appear March 15.

WE have excellent pure-food laws in this State; and a recent decision from the Ohio Supreme Court sustains them on every point. It is a misdemeanor, not only to adulterate, but to sell foods in the State, even though adulterated in another State; and it makes no difference whether the vender knows of the adulteration of the product or not. The State does not have to prove it, and he is liable just the same. The recent decision means at least \$20,000 to the State annually. Our food-inspectors are active and alert, and are making the sale of adulterated food-stuffs a dangerous business.

DURING the past few days we have received several complaints against F. I. Sage & Sons, commission merchants, of New York. We had decided to drop their advertisement until these matters were adjusted, when we received notice to the effect that the firm had failed. Their card is out now of course. The only reason we speak of it now is to prevent further consignments from going to their address. Of course any honey sent on commission is the property of the shipper, and can be by him replevined. F. I. Sage & Sons, were an old firm in whom we had always placed confidence, and we regret matters have taken the turn that they have.

IN our last issue, page 137, in a footnote just following the statements of the three bee-hive manufacturers I said, "Besides ourselves I believe the three firms here represented are the only ones in the country who manufacture a full line of bee-hive material so far as wood-work is concerned." In saying this I did an injustice to an old well-known advertiser, E. Kretschmer, of Red Oak, Iowa. By his card in this issue it will be seen that he is well equipped for manufacturing every thing in the line of bee-goods. I don't know how I overlooked him; but by good rights I should have included him in the list of those "who manufacture a full line of bee-hive material." As in the case of the other three, I have asked him to make a similar statement of his business, which I shall be glad to publish later with his photograph.

WE have on hand several good articles in type which have been crowded out of this and the previous number for lack of room. I have been in hopes we could "catch up" with our space; but as I see no immediate prospect of it now, we shall have to add extra pages next issue to take them in. I also have more good articles in manuscript which I fear will never even get into type, for the reason that the rule of the "survival of the fittest" will make some of them give room to something perhaps a little better or more seasonable. The editorial fanning-mill may not *always* do a good job of sifting; but when it gets out of gear, kindly call the editor's attention and he will see if it can be fixed.

FOUNDATION BY THE OLD PROCESS OF DIPPING,
FIVE TIMES MORE LIABLE TO STRETCH
IN THE HIVE THAN THE NEW
WEED PROCESS.

JUST as soon as we got the new Weed process of making foundation nicely under way, we sent Mr. O. O. Poppleton, of Stewart, Fla., sample sheets of the product, and sample sheets of the old foundation, same weights and size. These he was to test in the apiary as soon as the weather would permit, to determine the relative sag or stretch of the two kinds of foundation in the hive. After he had made his first tests, he wrote us that the difference was slightly in favor of the new process; but the weather was hardly suitable to arrive at satisfactory results. A month or so later we heard from him again, under date of Feb. 19, giving more exhaustive experiments, the result of which showed that the sag by the *old process*, or dipped foundation, he had been trying, was *nearly five times greater* than by the new process.

Mr. Poppleton, cautious as he is, desires to test the matter further, when the weather is hotter, and will report again. He adds: "It looks as though your claim, that the new method gives extra toughness to the wax, is correct." Any one who works the two kinds, the new and the old, in his hands can readily see the difference; and it is not surprising at all that the bees should discover the marked difference in favor of the new foundation. Incidentally it may be remarked that the bees can work this wax in a much cooler temperature than the old dipped product.

SYRUP BY THE COLD PROCESS VERSUS THAT BY
THE OLD WAY.

SKYLARK, in another column, calls attention to the difference of opinion between Dr. Miller and Mr. Elwood regarding syrup for feeding made by using heat, versus that made by the cold process, as was spoken of in GLEANINGS some time last fall. Both of these bee-keepers are practical men; and when two such doctors disagree, who shall decide?

Last winter, and so far this winter, we tried,

and are trying syrup by the cold process, and so far as we can see it is fully equal (if not superior) to the ordinary syrup made $\frac{1}{2}$ water and $\frac{1}{2}$ sugar where heat was used; and by the cold process we have used the sugar and water half and half, and it was then brought more nearly to the consistency in which bees find the raw nectar in the flowers. Such thin syrup, I am sure, is ripened better whether heat is used or not; and when sealed in the combs, for us at least, it makes very much better stores. None of such syrup has shown the least tendency toward granulation, and the bees last winter came out on it in perfect condition. I do not believe heat has very much to do with it either way. Mechanical mixtures can be effected perfectly by vigorous stirring, either hot or cold, providing the sugar is in proportion of half and half, and this, in our experience, is quite thick enough in order to insure ripening on the part of the bees. They will then reduce it down themselves to the right consistency, if you give them a chance.

BAD COMMISSION MEN; OR, SLIPSHOD BEE-KEEPERS AND SLIPSHOD METHODS OF PUTTING UP HONEY.

I HAVE had a good deal to say lately in regard to selling honey on commission; and I have also referred to some of the tricks of the trade that are practiced by some commission houses not overly scrupulous. But I am coming to believe more and more the trouble is as much with the bee-keepers as with the commission houses. Please read the article by Geo. F. Robbins, in another column. I tell you it is perfectly abominable, the way bee-keepers put up their honey. The majority of them do not stop to scrape their sections, do not think it pays to grade, or, if they do think so, they do not take the time to do it. Then, moreover, they are penny wise and pound foolish in trying to economize in putting up their comb honey in cheap, poorly made (home-made), shipping-cases; and a good many times these shipping-cases are too large to fill out the crates, and sticks and boards are used to fill out the crate. I saw some such cases when I called at one of the commission stores in Chicago; and I do not wonder that the honey-merchants can not, and do not, realize on such honey full market quotations.

The great and absorbing question nowadays with bee-keepers is, *how* to get the *honey*. Well, having gotten it, what folly it is to knock off from $\frac{1}{4}$ to $\frac{1}{2}$ of its value—yes, even more than that—when a *very little time* and ingenuity and taste on the part of the bee-keeper would save it all! For instance, how much time will it take to grade 2000 or 3000 lbs. of comb honey? I venture to say a ton can be graded by a smart boy or woman *easily* within a day. And I am sure it would add, easily, a cent a pound to the value of the honey. Or,

in other words, that smart boy or woman could earn \$20 for the day's work. Pretty good wages, you say. Well, perhaps that person can make another cent by scraping. But some "penny-wise" bee-keepers imagine they are going to save two or three cents on shipping-cases by making them themselves. They figure the lumber costs so much a foot, and that they can get them made at the planing-mill. They get them made, but what are they? The buzz-saws they use at these mills generally have very coarse teeth, and the work is rough; and then they don't understand, as do the bee-hive manufacturers, the importance of *absolute accuracy*; and, furthermore, they do not know how to go at the job in the first place. The bee-keeper who saves two or three cents on a shipping-case will probably lose twenty-five or even fifty cents on every case of honey because the goods look so "ornery" and awkward. The average commission men receive honey put up in all sorts of styles; but these "ornery" lots have to wait until all the best lots are cleaned out, and then buyers will take it at a greatly reduced price.

Commission men have come in for their fair share of blame; but bee-keepers must not forget that the trouble is not solely with them. I have referred to slipshodness in putting up honey before, and I shall keep on referring to it until bee-keepers, at least our subscribers, will get to the point where they will put up their honey, and realize decent prices. Give the commission men fits if you want to; but do not lay all things at their doors.

FASTENING SHEETS OF FOUNDATION INTO BROOD-FRAMES.

As this is about the season of the year when bee-keepers will be doing this work, a few hints may not come amiss. There are a score or more of ways of doing it. Some of them are good, but more are poor. Putting, as we do, hundreds of sheets into brood-frames, we can not afford to fuss with any but the very best. But you say you have already tried those in our catalog; but from the number of inquiries that have come in, it seems that there is something that is not yet understood. The method that we prefer is that shown on the next page.

This is a modification of the Hambaugh roller used so successfully by the Dadants and others. It consists of a handle slotted out at one end to receive a wooden wheel, about an inch in diameter and half an inch through, and nicely rounded on the edge. All that is required is to put the sheet, one edge of it, along the molded comb-guide, and then, with the roller previously dipped in water, roll the edge down until it adheres to the comb-guide firmly. So far so good. But it seems that some of our friends and patrons have done all this and yet have not succeeded in making a good job.

In talking with our people this morning who put in foundation, I think perhaps I have omitted one or two essential points in the directions. One is, that the foundation should be set in the sun, near a stove, or a coil of pipe, if

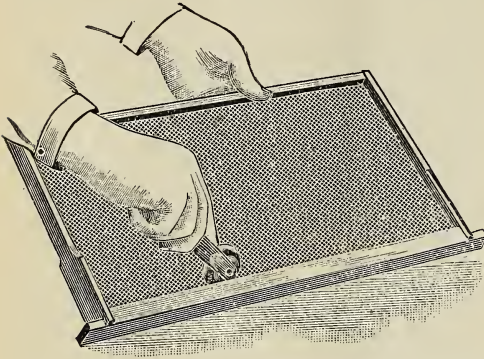


FIG. 1.

the day is not warm enough to make it soft and pliable. This is quite essential; otherwise, after the edge of the sheet is rolled on to the comb guide, it is liable to pull off. But our people say it is not even necessary to have the foundation warm, providing the *wooden wheel itself* is kept immersed, while, not in use, in a cup of *hot water*. Even if the foundation is cold and hard, the wheel, steaming hot, softens the edge so that a good firm attachment may be made. Perhaps there may be times when it



FIG. 2.

will be necessary to warm the foundation and use the hot water too; but ordinarily, in summer weather, when foundation is set near a window where the sun strikes it, the wooden roller will make it stick, even when lubricated with cold water.

But not all people can be got to place the same estimate on the same device. Some pre-

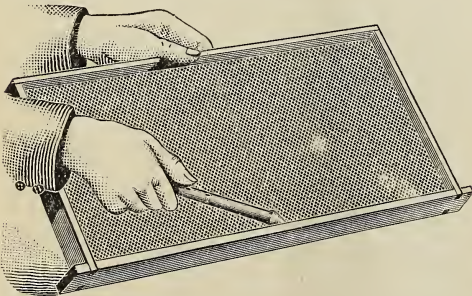


FIG. 3.

fer the melted-wax plan. There are several; and perhaps the best one is simply a tin tube about $\frac{1}{2}$ inch in diameter, six or seven inches long, tapering at the end with a small hole at

apex. On one side, near the handle, is pricked a small hole so that when the tube is stood up in a cup of hot wax (heated by a lamp) the air will escape and the wax will flow in at the small hole in the apex before referred to. In use the flow of wax may be regulated somewhat by stopping the air-hole with the thumb. (See Fig. 3.)

The foundation is put into the frame, and laid against the comb-guide. Then the little tool containing the hot wax is drawn out, and the point inserted up into the corner of the frame, and it is then drawn across the whole top-bar, as seen in Fig. 3. The hot wax runs out of the little hole in the end, leaving a train of wax along the edge of the foundation to fasten it.

This implement is specially serviceable where a groove is made in the top-bar. The foundation is inserted in this groove, and then this tool with its hot wax is drawn along the edge. The wax runs out, thoroughly cementing the foundation into the groove.

A tool for accomplishing the same purpose is shown in the next engraving. This is simply a piece of tin, as shown, and mounted in a wood-



FIG. 4.

en handle. One end of this wooden trough, as it were, is drawn to a small hole or opening. To use, dip it full of hot wax, and draw it quickly along the edge of the foundation, in contact with the top-bar.

Both of these ideas we got from Mr. J. Van Deusen, of flat-bottom-foundation fame. He has used these implements for years, and prefers this method of fastening to any other he knows of.

In order that I might myself place a proper estimate on these tools as compared with the Hambaugh pressure method, I tried the tube first described, going to the wax-room, where there is melted wax and plenty of foundation and brood-frames. Yes, indeed, I found I could fasten foundation, and do it quickly, but not any more quickly than with a Hambaugh roller, but not nearly as nice a job, either in looks or in the security of the fastening. The wax had a fashion of streaming over things, and then I found I had to hold the frame still for a full minute in order to allow the streak of hot wax to cool before I could lay it down. And even after it cooled, the sheet would sometimes pull out. But I could readily see that the tool was the best implement we could possibly use providing a groove were cut in the top-bar on the under side, far better than the Hambaugh roller or any similar device. For those who prefer and will have saw-kerfs in the top-bar, this, in my judgment, is the best fastener yet brought out.

OUR HOMES.

Many are the afflictions of the righteous; but the Lord delivereth him out of them all.—PSALM 34: 19.

From the above it would seem that it is God's will that we should bear afflictions, and, to a certain extent, pain and suffering. That is, a certain amount of trial and affliction seems to be best for poor weak humanity. Don't let me be misunderstood here. God is our father, and we are his children. Our best well-being seems to demand that we should come to him often. We should make him—our Son—our friend and counselor. If we had good health and strength, and success in every thing everywhere, we should become proud, overbearing, and perhaps indifferent and lazy. I am sure of it, for I have oftentimes been conscious that, when I am relieved of responsibility, pain, and trials, I forget to be thankful. Yes, I forget the great God above, and what I owe to him; therefore, in the language of our text, we are to recognize that "many are the afflictions of the righteous;" and these afflictions are not *always* because we have done wrong. The tornado that blows down our buildings and does us injury is certainly no fault of ours. It is something we can not very well help or prevent; neither does it necessarily follow that it is because we are wicked. A great many of our afflictions and sufferings do come because of our own sinfulness, but not necessarily *all* of them.

Now, let us not forget the last half of our text: "But the Lord delivereth him out of them all." That is a pretty broad promise, my friends. No matter what overtakes us, nor whose fault it is, the promise is that the Lord can and *will* deliver his people out of *all* of these things.

Since my talks in regard to doctoring without medicine, and especially since the little illustration I gave you a short time ago, how Mrs. Root was given relief in answer to prayer (when medicines and doctors seemed to be powerless), I have not only had great numbers of kind letters, but several books have been sent me in regard to this matter. One that attracts my attention most of all is a little book of about 250 pages, by E. E. Byrum, of Grand Junction, Mich. I see the price marked on the cover is 25 cts. The title of this book is "Divine Healing of Soul and Body." This title of itself awakened my interest, as you might feel sure it would. Now, I have read a large number of books already on this matter. Please do not feel hurt, dear friends, when I tell you I have felt troubled about this "faith cure;" and especially have I felt troubled when I have known these people to carry these matters to such extremes that they neglected to send for a physician, in a critical case. Yes, I think there are instances where, instead of employing a surgeon to set a broken limb, the friends have relied on their prayers, and expected God to perform a miracle. Please pardon me for this plain talk, for I think this is about all I have to say in the way of fault-finding in regard to faith cure. Well, this little book of friend Byrum's seems to be very sensible and rational, even while it tells of wonderful cures that came about by simply trusting God, and holding fast to his promises. May I digress a little just here? Quite a good many religious books are sent to me to read. A good many of them, it seems to me, are a string of quotations from the Bible, without point or reason—at least, they do not appeal to my good sense or understanding. I absolutely can not have the patience to read them, and it troubles me to think

that other people should commend a book so very highly, when to me it has no connected idea. I wonder if any of the rest of you have had similar experiences. I have tried to think the fault was mine; but for some reason God has not given me a faculty to understand theological doctrines; or, in other words, it seems to me the dear friends who write these books and read them are *away off* from the track. They are wasting their paper and time and ink on things that are comparatively unimportant. I have been in the habit of giving some of these books to the pastor of our church. Very likely God calls us to investigate along different lines; and what interests one does not interest another.

Now let me go back to the little book, "Divine Healing of Soul and Body." Friend Byrum quotes scripture texts right along, but he uses them in a plain, matter-of-fact, sensible way. He uses the texts as I would use a hammer, saw, or crowbar. They mean something, and carry conviction. The first part of the book is devoted to the healing of the soul; and this, surely, is a plain, common-sense idea. A man can not expect God to heal his body when he is in spiritual darkness. It has pained me exceedingly to hear certain persons who are not godly men, and not *praying* men, talk "Christian science." Yes, and I think there are those of this class who advertise to pray for sick people for a certain sum of money—say five or ten dollars. Such things seem to me "just awful." I know it has been urged that the laborer is worthy of his hire, and that, where a good man devotes his time to the laying-on of hands, and prayer, and people get well, they should give something for his support. In fact, I have heard of those who make no charge whatever for this sort of treatment, but tell their patients after they get well they can give them what they choose. This may seem to be very fair; but, notwithstanding, I do not feel satisfied that it is the right thing to do. Our Savior never received any sort of recompense for his divine healing; and if it be true that God has seen fit in these latter days to commission any human being to heal in like manner, I should say let him shun even the *appearance* of evil by refusing to accept pay. He who feedeth the ravens can supply the wants of such a child of his. Mueller, in his great work in London, went to God, and to him only, for help.

Permit me to say right here that a good friend in California has felt very much hurt because of what I said about Schlatter and his alleged cures. Schlatter never received any equivalent, if I am correct, for what he accomplished in the way of healing; and this one thing gave him his great celebrity and wonderful power. Had he at the same time been an evangelist—had he been exhorting people to righteousness and godly living, and had he done spiritual healing along with the other, I should have been ready to admit that God had seen fit to give him miraculous power. As it was, I could not learn that he had raised the standard of godliness anywhere. Those he healed were not even told to "go in peace, and sin no more." From all the evidence I could get I was led to believe that people imagined themselves healed, just as they had imagined themselves benefited by that innocent and senseless toy, Electropoise (it is the *machine*, mind you, that I call innocent, and not the proprietors of the thing nor the papers that accepted the advertisement of it).

Now, before I finish what I have to say in regard to "Divine Healing," let me notice another book—a much larger one—entitled "Science of Living: the New Gospel of Health." So far as I can make out, the great point in this last book is, that people should "go with-

out their breakfast." This comes on the ground, as you may know, of the Battle Creek doctrine of two meals a day. When I read the testimonials from the people who had been cured, it brought to mind a little newspaper squib of years ago, and it makes me smile again when I think of it. The title of the squib was, "How to be Happy." The directions were very plain and simple; viz., "Go without your breakfast, and see if you don't feel happy when dinner-time comes." And I have not a doubt but there is a grander truth embodied in the above than the writer of it ever dreamed of. This new "gospel of health" says when you don't feel a vigorous appetite for your breakfast, skip it. After a little time, when poor, patient, and docile Dame Nature gets used to the program, you will not only feel just as well, but ever so much better. No doubt of it. The starvation cure is probably as old as the hills; but after having tried both ways pretty faithfully, I would say, instead of eating *nothing at all* for breakfast, eat just lean beefsteak, and nothing else—not even a crumb of bread nor a drop of tea or coffee. I have not the space to review this book, by Edward H. Dewey, M. D.,* but I must give you just one point made by the author. Before commencing the practice of medicine he served an apprenticeship in a drugstore; and having a natural bent toward the matter of curing diseases he made it quite a study; and he says that, boy as he was, after several years in the drug business he noticed this: People came for remedies, who were afflicted with various acute diseases; and he was surprised to find out that, no matter *what remedy* they purchased, they, as a rule, *got well*; and then, of course, ascribed their recovery to the medicine they took. No matter what the medicine, the man using it was almost always *cured*. One whole side of the drugstore was occupied with various patent medicines piled up on the shelves. They *all* did good. Oh, dear me! Did it ever occur to you, my dear friends, that *Nature* performs a cure, and the dosing gets the credit? Now, is it not true that here lies the explanation, not only of Electropoise, Schlatter, "pink pills," "safe cure," and this whole long catalog, and the greater part of the remedies to be found in drugstores? This is the conclusion of an honest Christian physician, who has had a large life-long practice. He gives us a history of his experiences, through this large book of over 320 pages, and now comes out and tells people to give up drugs, and, when they are sick, *go without their breakfast*. Of course, he is most emphatic against the use of alcohol, tobacco, and every thing along in that line.

Now, dear reader, with your permission I want *again* to get back to "Divine Healing." This little book is sensible. If it has any fault it is that it urges too strongly, if such a thing were possible, that we shall trust in God, and go to him direct, no matter what troubles beset or assail us. If that does not do, follow the injunction of James 5:13-15. Now, if he dropped it right there I should be suspicious of his teachings. But he does not. One chapter is headed, "Hindrances to Healing." In this chapter he speaks of the *absolute* importance of the one who expects divine healing of being *pure in heart and clean* in his habits. He says: "Men sometimes apply for healing of dyspepsia, etc., caused by the use of tobacco, expecting to continue the filthy habit."

And again:

"Women suffering from some dreadful trouble brought on by lacing and wearing of corsets

too often desire to be healed, but are not willing to remove the cause."

And still again:

"Persons practicing filthy habits, abusers of themselves, etc., call on God to heal them, and yet will not turn from that which makes themselves *self-murderers*. Is it any wonder that the world says faith healing is a failure?"

I would add that, before a man can consistently expect that God shall heal him, he must stop defrauding or trying to get ahead of his neighbor in *any* unfair way. He must be striving earnestly day by day to lead a consistent Christian life. There is one chapter entitled "The Use of Medicine." He says, "Medicines are made for two classes of people—those who are not acquainted with God, and those of his children who are afraid to trust him." In the same chapter occurs the following:

"What about broken bones?"

"In such cases, if no one present were capable of setting it properly, I would call a physician or surgeon, if necessary, to set it, and ask the Lord to heal it."

The friend who wrote me from California (mentioned above) criticised me severely for my inconsistency in giving Mrs. Root the poisonous drug chloral right after the very plain and unmistakable answer to prayer, where she was given sleep simply by my kneeling by the bedside when all the doctor's remedies failed. My answer to this is, that I had also been praying that God would give the doctor wisdom and understanding in doing his part in the matter. I myself should have preferred that she should not have had the chloral. The doctor was sure it would be needed at about this stage of the disease, and I did not feel like taking the responsibility of countermanding the doctor's orders right at that crisis of her sickness. Perhaps I erred in want of faith. If so, I hope the Lord will forgive me. By the way, Mrs. Root entirely agrees with me in regard to the value of medicine. She thinks now that possibly she might have got along just as well with less medicine; yet we do not feel like setting our opinion above that of an honest and intelligent family physician.

In this little book friend Byrum gives us experiences of large numbers of people scattered all over our land, who have been healed by simply making their troubles the subject of prayer. I was much interested in seeing the large number of testimonials from dyspeptics,* and those who have heretofore been unable to eat ordinary food. After reading the book the first evening, I prayed earnestly that God would,

*These people ate with impunity things that had been formerly hurtful, by simply asking God to remove the trouble, to give them healthy assimilation and digestion. Now, a beautiful thought comes in right here: These subjects of divine healing were not cured by praying once about the matter, nor once a month. Day by day they asked God to give them healthy digestion. Very likely it was done before partaking of each meal. Now, where we sit down to the table, and somebody asks a blessing, we often hear the phrase, "O Lord, bless this food to our use," or some similar expression. It never occurred to me till just recently that this asking a blessing upon our food, or "saying grace," as it is sometimes called, might and should include asking God to help us in our digestion. When we do this, of course we should do every thing in our power to help ourselves; and especially should we guard against the temptation to overeat, or to eat unwisely of rich foods that happen to please the taste. Those who are seeking holiness certainly can not consistently be gluttonous; and thus you see it is almost absolutely necessary that spiritual healing, or healing of the soul, should come first, and the healing of the body afterward; and this is the way in which the little book, "Divine Healing," has put the matter.

*If any of you should want this book, send \$2.25 to the Henry Bill Publishing Co., Norwich, Ct.

if consistent with his will, permit me to eat such food as other people do. The next morning, and for almost a week afterward, I ate what I pleased, and enjoyed better health than I have enjoyed for years, doing hard severe mental labor in the office right along every day. Now, let us go slow in this matter, and be fair about it. I said I ate "what I pleased." Well, what I "pleased" was two-thirds or three-fourths lean meat as heretofore. The other was zwieback and breakfast food well cooked, with a very little very nice new white maple sugar. I hope friend Byrum will forgive me for my want of faith when I say the pure sugar from the maple *may* not have harmed me at any other time. If so, then, in answer to my prayer, I had made a most pleasant discovery. At the end of the week I ventured to eat some hot bread, or gems, made of whole-wheat flour and baking-powder. In a few hours I was back again with one of my worst experiences with indigestion and headache. I can only *guess* it was the hot cakes. Friend Byrum would doubtless say it was a lack of faith; for, to tell the truth, I was a little backward in confessing to my friends that, in answer to prayer, I was even using *sugar* three times a day, absolutely without injury or any bad symptom whatever.* You know one naturally feels a little delicate about telling spiritual experiences like these. The family wondered at my eating these things with impunity, but I had not explained it to any of them as I had to Mrs. Root. I am happy to say this morning that I have my full health and perfect digestion once more; but for the last three meals I have eaten *pure lean meat*, nothing else. Now, has God answered my many prayers in regard to this matter of diet by making known to me that a diet containing neither starch nor sugar will relieve these troubles? or am I lacking in faith because I do not stand out boldly and eat what other people do, trusting God, and *him alone*, to keep me in health? You see, this matter about using *tobacco*, and asking God to heal, may be carried a little farther, and have it include tea and coffee, fat meats, rank vegetables that you know do not agree with you, etc. You see, we are but *human* in all these things. Again and again I am reminded of that oft-recurring sentence in my prayers of late:

I am weak, but thou art mighty.



VEGETABLES, ETC., UNDER GLASS, IN THE MONTH OF FEBRUARY.

I do not know just why it is, but there is something wonderfully fascinating to me in raising stuff during the latter part of the winter, under protection. Let me give the follow-

*I suppose Dr. Lewis would say sugar was the cause of all the mischief, or nearly all; that the trouble had been cumulative, as when medicines are taken repeatedly, without producing any effect; the mischief had been piling up without my being sensible of it, and the result was as given. I do not think, however, this can be true. Until I ate the hot cakes, my health had been perfect. Even during this zero weather that we have been having for a week, I could stay in the open air, right in the wind, and work without mittens or any thing else on my hands; and day after day there seemed to be a spiritual uplifting so that I could say almost continually, "Praise God, from whom all blessings flow."

ing as an illustration: Yesterday, Feb. 12, the Weather Bureau predicted rain and warmer weather. I told the boys to be ready in the morning to pull all the sashes off from every thing, especially if it was a *warm* rain. By the time I had finished my breakfast, there were the plants looking happy, and doubtless feeling happy, under the influence of what might be called a summer shower in the winter time. The long bed of onion-plants, that had been shut up under a freeze when only five degrees above zero, were just hungry for fresh air and fresh soft water, so *they* looked smiling. The Wakefield cabbage were just out of the ground. The radishes, being a little more hardy, were somewhat ahead of them. Cold-frame cabbage-plants had brightened up and really made quite a little growth since the last time they were uncovered. The Marshall strawberry-plants, set just a foot apart in the fall, were full of buds and blossoms. Many of the blossoms were just opening. Our transplanted lettuce got through the freeze all right, and every plant was alive. Spinach, onions, and other things, were also happy. The pie-plant that I wrote about in our last issue, instead of vainly trying to push up the glass sashes had stretched out their broad leaves, and they too looked grateful for the rain, and for the room to grow.

After the plants were all uncovered, a new bed was prepared with nice fresh dirt. On top of it we put an inch or so of fresh sifted horse manure; on top of this, half an inch of tobacco dust. Then the ground was marked out with a marker similar to the one shown on page 76, except that the knobs were 7 inches apart, and some nice lettuce-plants were hastily taken out of the greenhouse and put in. Before the bed was half-filled, however, the weather had become snowy and sleety. Then was when my enjoyment came in, by taking great care and pains to cover every thing tight and snug for another siege of winter. By the way, how strange it is that so few can be found who will do a simple thing like covering plants with sashes, and do it well and thoroughly! Many a time valuable plants have been lost just because the boys did not crowd the sashes up tight. A crack big enough to let a knife-blade through will let in frost.

During the recent mild weather we have been covering the outside board of our beds with tarred paper. To protect the tarred paper, we nailed on some cheap shingles. This makes the bed look tidy, and keeps out all the frost. Now see that the top edge of the bed is planed so flat and level that the sashes, especially the end ones, shut down almost air-tight. As a precaution to see that the sashes are "tight up," as I remarked above, it is a good idea to go to one of the beds, after they are all on, and crowd against the outside sash hard enough to move the whole 14 say half an inch. This effectually shuts up any little crevice; and if a high wind comes, each sash is pinched so tight between its fellows that there is little prospect of even a small hurricane getting a sash loose unless it commences with the end ones. Put a board across the end ones, with a big stone on top, and they are all pretty secure.

Now, perhaps you do not see where the enjoyment comes in, of covering up plants out in the sleet and storm. If so, it is because you do not *love* the plants. The great secret of success in any of these rural industries is in having a genuine love for the things you handle and are trying to make grow. As I look out of the window now, and see the snowy sleet that is accumulating over the sashes, I think of my pets underneath, so warm and comfortable; and I verily believe they are happy, after their fashion, and that makes me happy, especially when

I realize the promise, "In due time ye shall reap if ye faint not." Our pie-plant is bringing 20 cts. per lb., and our lettuce nearly twice that, and we have not a sufficient supply of either.

Feb. 22.—Since the above was written we have had a week or ten days of very cold weather; in fact, the thermometer has, a good deal of the time, been between 5 and 10 degrees below zero; and, to tell the truth, there has been a little more anxiety than real enjoyment in getting the plants through the blizzard. The Thoroughbred potatoes were, a good many of them, "scorched." My two Tonga beans were killed dead because I forgot to put something over them; and the greater part of our extra early tomato-plants were lost. As this happened, however, as early as the 15th or 20th of February, by getting in a lot more seed promptly we shall probably not suffer very much loss. I am happy to say, however, that the strawberry-plants in that sub-irrigation bed described on p. 29, Jan. 1. came through almost without injury. They are full of buds and blossoms, and are doing just splendidly. The bed is working beautifully. In fact, whenever I go near it I have one of my "pleasant surprises." Our other beds, even with exhaust steam under them, suffered more or less; and a great part of the damage was caused just because the boys who put on sashes did not shove them up tight together; and I allowed this to pass unnoticed, even after my emphatic directions in regard to putting sash "tight up." I wonder how old a body has to be in order to learn to look after things, and to do things as well as he knows they ought to be done.

About the 5th of February the ground thawed up enough so that we went out in the field and dug quite a lot of winter onions. The best of them were bunched up and sold. The smaller ones were separated and planted in one of the greenhouses, 3 inches apart. They were put close up to one of the sashes that come down so near the bed that the onion-tops now touch the glass. I put them in this place because almost every thing else was liable to be frozen in that particular corner. But in just two weeks these onions were just handsome. The light freezing they had been getting almost every night seemed to do them good rather than harm, and they are now the finest lot of bunch onions I think I ever raised under glass. In my former experiments I had always kept them too warm. They do not seem to need any bottom heat, and only a little overhead. These were old onions that had borne a crop of top sets for several years. We took the large bunches and separated them, putting one in a place.

MAULE'S EARLY THOROUGHbred POTATO AT THE OHIO EXPERIMENT STATION.

We copy the following from a recent issue of the *Practical Farmer*:

Prof. W. J. Green, of the Ohio Agricultural Experiment Station, writes: We received last spring a small quantity of Maule's Early Thoroughbred potato, and we are glad to report that it has done well here: 14 hills yielded 24½ pounds, or at the rate of 357 bushels per acre. This was on new ground, cleared one year, but the season was unfavorable, and it may be considered a good yield. Of course this is a calculated yield per acre, and I should feel more confidence in the result if we had at least two rows across the field, which is our usual practice. I believe this is a good variety, however, and will stand well up to the head of the list in productiveness. The plants are vigorous, and the potatoes are all that can be desired as regards the size and appearance.

I wish friend Green would tell us something about the comparative earliness of this potato. I believe friend Terry said he did not think it

quite as early as the Early Ohio; but as he had no Early Ohio side by side he had no means of telling very accurately. It is an early potato, a wonderful yielder, of most excellent quality. On these three points, with the testimony we have had, we feel at least tolerably certain.

We find the following at the head of Mr. Terry's article in the *Practical Farmer* for Feb. 15:

I hear that Mr. Everitt, in his seed catalog, has made use of what I wrote in *P. F.*, and what Mr. A. I. Root said in GLEANINGS about Mr. Wm. Henry Maule's new potato, since named "Maule's Early Thoroughbred," applying it to a potato of his own. Mr. Everitt had no authority whatever for using my name or Mr. Root's in his catalog. I have never seen his potato, and never before heard of it.

THE CRAIG SEEDLING AT THE OHIO EXPERIMENT STATION.

Friend Root:—There seems to be a difference in opinion about the Craig in what I wrote in GLEANINGS of Nov. 1, and which the newspaper bulletin of the Experiment Station published later. Now, if I were in the wrong I would try to make it right; but when I saw the bulletin I was as much surprised as any one, for I had no hand in making it. I went to Prof. Green, and told him I thought he had not made a correct report of the Craig. After talking the matter over, and telling him what I thought was the cause of the small yield, he said he thought I was right, and was sorry that it was put as it was in the bulletin.

It is true, the Craig made a small yield here at the Station, but not because of its susceptibility to the blight, but because, being a late potato, and not being far along in its growth, it was hurt far worse by the blight. I believe the blight to be a contagious disease. We had a good illustration of this the past season, on the early potatoes. The blight started first, then spread to the variety patch; from there to the three late-planted patches, first to the one nearest, then the one next nearest, and, last, to the one farthest away.

The Craig, being in the variety patch, was surrounded by a hundred other kinds that were blighting, and I do not believe it possible for any variety to escape the blight under such circumstances, and not be killed by blight.

When I was at the Medina Co. Fair, about Sept. 1, I was in your field of Craigs several times, and could not find any blight on them, although the Rural New-Yorker and Banner, which I have always considered as free from blight as any kinds I know of, were badly blighted. On the Station grounds the Craig stood up as long as these kinds, which is just what I said in the Nov. 1st GLEANINGS; but its small yield was owing to the fact that it was a very late potato in a field where it could not escape the blight, and not because of "its susceptibility to the blight." I will also say that the seed potato from your field, where there is no blight, is worth a great deal more than from where they were blighted.

Wooster, O., Feb. 15. EDWIN C. GREEN.

Many thanks, friend G., for giving the Craig its just dues, and also for the facts you give us in regard to blight in potatoes generally. I may add that our Craigs were just as bright and green, and free from any symptom whatever of blight or any other disease, until the time the frost put an end to their growth, so our friends can rest assured that the seed we offer was grown entirely free from this troublesome malady.

THE SOJA BEAN; FROM THE OHIO EXPERIMENT STATION.

Friend Root:—Of all the forage crops that have been tried on the Experiment Farm, I know of none that seems more promising than these beans from Japan. While they may never take the place of corn, yet they have one point in their favor above corn; and that is, they belong to the clover family, and have the power of collecting the nitrogen from the air by the tubercles that grow on their roots; and so when you cut a crop and feed it, the land is better off for nitrogen than it was before.

The seed is good size, and comes up quickly, and soon covers the ground, keeping the weeds down al-

most entirely. Crimson clover was sown with them here last April, and was all smothered out except around the edges.

I was surprised that cows would eat them readily when green, for, as a rule, cattle do not care for any thing in the bean line; and no doubt if they do, sheep would be very fond of them, and perhaps they could be fed to horses.

They are very rich in muscle-forming substance, and the quantity that can be grown on an acre is very large. The yield of ten tons per acre, green, was made both by the green and yellow soja bean on the Station ground last summer.

The green, being the earliest, comes nearer ripening the bean than does the yellow, which is very late.

The value of these beans for plowing under has not been determined yet, but no doubt is very great.

These are some of the good points, and now for the bad ones:

It is extremely doubtful whether the seed can be ripened in this climate; so if we have to send south for it, it will make it expensive.

The crop being so heavy and full of water, it will make it hard to handle, and hard to cure and store when dry. No doubt there are other good points and drawbacks that will be found out where the bean is grown.

EDWIN C. GREEN.

Wooster, O.

RESTORING A WORN-OUT FARM.

Friend Root:—On page 119 a West Virginia correspondent asks for information in regard to the restoration of a worn-out farm. Having just spent two years at that kind of work on a somewhat similar soil, I feel that I could be of service if I had the party at hand. In the first place, his farm having been in pasture must have some humus—mine had none. The presence of redtop would seem to indicate excess of moisture; but the man wants to realize something on his investment this season. If the case were mine I should not hesitate to plant some of the best portions with early potatoes if his market would guarantee 40 or 50 cts. per bushel. He will find a subsoil plow an excellent tool on that farm, as I did.

Regarding chemicals, it seems to me rather late in the day for a man, however intelligent, to say in effect that certain substances are plant-food in one section and not plant-food in another. We are using about 35 to 40 tons of high-grade fertilizers yearly, and I grew a paying crop of potatoes and onions on ground so poor that it produced only 12 bushels of wheat per acre, 1500 lbs. per acre to potatoes, 2000 for onions. It is a fact that fertilizers require a greater amount of moisture to dissolve them, and growing crops do not so readily assimilate the nutriment contained in them as from thoroughly rotted stable manure.

It is also a fact that the presence of humus, or decomposed vegetable matter in the soil, is a great assistance in making available the plant-food contained in fertilizers by its well-known ability to retain large quantities of soil moisture. Should your correspondent have a season unusually dry next summer, he will probably obtain but little benefit from fertilizers, and probably less still from unfermented stable manure. I have found three instances where fertilizers utterly failed to give returns: One was when we had no rain from start to finish; another was when there was a total lack of vegetable matter in the soil, coupled with no rain; and the third was that of a party who claimed that stable manure always helped his crops, but fertilizers never. Five cents' worth of litmus paper revealed the fact that his soil contained an excess of acid, that to a certain extent was neutralized by the alkali of the manure.

But after all, your West Virginia friend will find that cow peas, acid phosphate, and nitrate of potash, will be the combination that ultimately restores the wasted fertility of his farm in the most economical manner.

I find I can get as good results from cow peas in one year as from clover in two; besides, there are no failures to seed, clover for us frequently burning off; and last year, a fairly good growth one year old burned to the earth, and died, while cow peas (sown right through the center for comparison) were growing. With cow peas at \$1.25 per bushel, 1½ bushels per acre, the use of acid phosphate, say \$15 per ton delivered; nitrate of potash, \$45.00 per ton delivered; 400 lbs. phosphate, 200 lbs. of potash, makes a fair dressing. It will pay to use twice this

much, as the peas will convert it all into elaborate material for next season's crop. M. GARRAHAN.
Kingston, Pa., Feb. 6.

I am very glad indeed to be corrected in what I said about chemical fertilizers, friend G.; at least, I am glad to know that *you* have succeeded with them. Our Ohio Experiment Station admits that they do good; but still they claim that, at the present prices ordinary farm products are bringing, chemical manures will cost more than the extra product will bring. I am very glad indeed to know that you in your locality have been able to make them *pay*; and if they help to bring a farm up to a productive condition I should not mind it, even if they did not always *pay*; and I am very glad to hear your good report in regard to the cow pea as a soil-fertilizer. If I am correct, I have seen them advertised in some of the agricultural papers for only \$1.00 per bushel for seed.

Special Notices in the Line of Gardening, Etc.

By A. I. Root.

Bless the Lord, O my soul, who forgiveth all thine iniquities: who healeth all thy diseases.—PSALM 103:3.

ALSIKE AND OTHER CLOVER SEED.

Now is the time to sow if you want to be sure of a good stand. See directions on page 154 of our last issue. We have a fine lot of nice new seed, at the very lowest prices. We are also ready to give you directions in regard to sowing and care of any of the clovers now before the bee-keeping and farming public.

NEW AND VALUABLE VARIETIES OF SEED POTATOES.

When this reaches you we shall be prepared to ship at our risk to any locality that lies south of our own; that is, where parties, for special reasons, want their potatoes *right away* for extra early planting, in the greenhouse or outdoors. Remember, we have pretty much all the best varieties before the potato-growing public, and our prices run all the way from 25 cents a bushel up to \$25.00 a barrel. We shall be glad to send you our latest revised price list of potatoes.

PLEASANT SURPRISES.

This one came along in line with a pleasant glimpse of human nature. A farmer, a few miles away, wrote me he had some Carman potatoes No. 1, and I agreed to give him 80 cts. a bushel for them. He said he brought me ten bushels; but when we came to put them into Terry bushel boxes, there was a good plump twelve bushels. He explained it by saying he heaped up the basket in the same way the hucksters in the Cleveland market insisted on his heaping it up. I asked him why he did not put them on the scales and give them an even 60 lbs. He said they refused to buy them that way. He gave me the same bushel he had been giving them; and I really enjoyed giving him \$1.60 more than he expected, and, in fact, more than he asked. This is a refreshing experience on the *other* side of what I said a few months ago about giving scant measure when you are selling potatoes. By the way, I wonder if the hucksters in *other* markets are guilty of tricks like the above. Our potato-growers are having hard times enough this season of low prices, without being swindled by making them give *more* than legal measure.

A NEW KIND OF POTATO-BUG.

I am not sure, after all, that there is any new kind; but a quotation from friend Swinson's circular on second-crop potatoes, which appears on page 154 of our last issue, would rather look as if there were a kind of bug down south that deposit their eggs in the potatoes. I remember that, when I read it, it seemed rather strange to me, but something called my attention, and it was allowed to go into print. I presume friend Swinson means that his seed potatoes were raised on ground not infested at any season with potato-bugs. Of course, they deposit their eggs on the leaves of the potato-plant—that is, the regular Colorado bug does; and I think I have

heard that the bugs themselves crawl up out of the ground in the spring. I feel ashamed that any thing of this kind was allowed to get into print. Perhaps friend S. will be so kind as to tell us exactly what he does mean by that clause in his circular.

THE SOJA, OR JAPAN BEAN (THE AMERICAN COFFEE-BERRY).

We can furnish this bean, described by Prof. Green on page 188, at 10 cts. per lb.; \$1.00 per peck, or \$3.00 per bushel. About one bushel (60 lbs.) is needed per acre. With the length of time that this bean (or coffee-berry) has been before the people, it seems to me somebody ought to produce it a very much less price than the above. If any of our readers can supply us so as to sell it at a lower figure, we should be very glad indeed to hear from them.

THE GOLDEN TANKARD MANGEL WURTZEL.

We notice quite a good many farmers are giving the preference to this beet mangel, for feeding to stock, and we have accordingly made arrangements to furnish the seed in quantities at the following extremely low prices: 1 lb., 15 cts.; 10 lbs. or more, 12 cts. per lb.; 20 lbs. or more, only 10 cts. per lb. Our well-known Mammoth long red mangel, until further notice, will be at the above low prices also. If you get the seed in early, on tolerably good land, it is not a very big job to harvest 30 tons to the acre, and 40 tons have been raised. Get them started early, and you will thus get ahead of the most troublesome weeds. Please mention this special price when you send in your order.

MAPLE SUGAR AND MAPLE SYRUP; HOW TO MAKE IT GO A GOOD WAY.

Almost every spring it to our custom to send samples of the first-run maple sugar to relatives in different localities where maple sugar does not "grow." Well, some friends down in Missouri have a fashion of making theirs hold out. It is this way: They make a syrup of granulated sugar, say something like the artificial honey found on page 75. Then to give it a flavor they add some of the new first-run sugar—of course, the more the better. But they say they like syrup $\frac{1}{2}$ or $\frac{3}{4}$ granulated sugar just as well as or better than the pure maple, and it is very much cheaper. Now, mind you, I am not giving a hint to swindlers and adulterators of food products. Everybody who orders and pays for pure maple syrup should have it. If he wants to dilute it with something cheaper in his own household it is his privilege. We see by a recent report that the maple sugar and syrup of Ohio, almost without exception, have been pronounced pure products of the maple-tree, and nothing else. I believe the State or government chemists appointed for the purpose have now ready means for determining whether sugar or syrup is purely from the maple-tree or from some other source. Now, then, friends, it is expensive to ship syrup long distances. There is a risk of leakage besides. But maple sugar can be shipped anywhere. Take this maple sugar and use it to flavor your sugar syrup or artificial honey. If you have never tried it we can send you some little cakes by mail to give you a taste; and I think that, after trying it, you will agree with me that it is away ahead of any candies you can buy at the candy-stores, and much more healthful for the children. We will mail you $\frac{1}{2}$ lb. of the first-run sugar for 15 cts. You will notice the greater part of this expense is for postage and packing. For prices of maple sugar by the quantity, see our last issue.

THE SEED AND PLANT CATALOGS FOR 1896.

I suppose you have all enjoyed looking them over; and I confess I feel a little proud to notice not only the wonderful skill of the printers and engravers, but also to see what progress is being made in the way of developing and working up to its utmost limit every thing in the line of fruits and vegetables. Surely the gardening interests of this nation of ours are no small thing at the present day. And then it concerns so much the homes of our land! I am pleased to note that the spread-eagle exaggeration is giving way to actual facts and honest truth. In fact, quite a number of the seed catalogs confine themselves almost entirely to actual photographs of what their seeds have produced. Foremost in this line is the catalog of Johnson & Stokes, of Philadelphia. On the back cover of their new catalog they have actually given us a photo-

graph done up in colors. One can get a great amount of information from these catalogs, especially those pertaining to small-fruit culture.

By the way, there are so many catalogs of strawberries and small fruits, that I have actually been afraid the friends would not all be able to sell their stuff. A few days ago I was thinking I wished I had somebody or something to tell me how to take care of my apple orchard. I hadn't time to read a whole book, and I thought I should really like two or three pages of plain simple directions, and I found it exactly in a leaflet that came from the Stark Brothers' nursery, Louisiana, Mo. This leaf of two pages told how to plant the trees, how to prune them, and what to do with the borers; how to prevent the sun-scald, and, in brief, about all the things I wanted to know; and with their large experience they can probably tell us what is really worth while to do and what is not. I hope every good honest reliable person or firm who sends out a catalog of strawberries, potatoes, small fruits, or garden seeds, will receive a just and fair reward for their labor. We should like our own proper share of business; but God knows we do not want it all to the exclusion of everybody else.



DEALERS' PRICE LISTS.

As we go to press we are completing our dealers' price list for 1896, which will be mailed to the names on our list within at least 10 days. If those handling bee-keepers' supplies, and entitled to this list, do not receive it during that time, will drop us a request we shall be pleased to mail it. If you have not had the list before, send with request some evidence entitling you to these prices, as they are intended only for legitimate agents and dealers, and those who buy to supply others.

COMB-FOUNDATION MACHINES.

As we have a large stock of comb-foundation machines on hand, of extra fine quality, which we desire to reduce, we offer them for the next 60 days at 10 per cent reduction from present list price. We have a few that we will sell at the old list price, which is, \$15.00 for 6-inch; \$20 for 10-inch; \$30 for 12-inch, and the 14-inch round cell we will sell at \$32.00. To those interested, desiring samples from these mills, we shall be pleased to send them on request. If in need of a mill, this is your opportunity.

SECOND-HAND FOUNDATION-MILLS.

Six-inch hex., No 1467. Just right for thin foundation. Almost as good as new. Price \$12.00.
Six-inch hex., No. 1321. All right for thin surplus foundation, and in good order, but comes from the rolls a little hard. Price \$6.00.
Six-inch hex., P. P. Vandervort. Price \$9.00. A good mill for the money.
Six-inch hex., Q. Q. Vandervort. Price \$5.00. This has several cells bruised which leaves a streak in the foundation; otherwise it does good work.
Ten-inch round cell, old style, M. M. Price \$9.00. This mill was made some time ago, and is not of course equal to mills we are making now, but it will answer nicely for heavy foundation.
Ten-inch round cell, old style, N. N. Price \$10.00. Similar to the preceding but in better condition.
Ten-inch Pelham mill. Price \$8.00. This is also suitable for heavy foundation. Deep walls with thin base.

CARLOAD SHIPMENTS.

Since our last report we have shipped a large carload of goods to McClure Bros., Las Cruces, N. Mex.; another to Geo. E. Hilton, Fremont, Mich.; one to Barteldes & Co., Denver, Colo.; one to Walter S. Poulder, Indianapolis, Ind.; one to Wm. A. Selser, Philadelphia, Pa., and one to John Nebel & Son., High Hill, Mo. We have also loaded a large car for export to England, consisting of sections, frames, separators, and new-process foundation. We are loading a car for Fowler, Colo., and have orders booked for several more cars to go within the next ten days to two weeks. We have made a contract with the Sanitarium Health Food Co., Battle Creek,

Mich., to supply them with boxes for their health foods, and have already shipped them several carloads. They require a car or more a month. This contract required the purchase of a box-printing press, which we have added to our equipment, and will hereafter use on much of our bee-hive work. We are prepared to print up shipping-cases with the name and address of the user, if taken in sufficient quantities. This would make a permanent advertisement, of lasting benefit. Our shipping-cases are already so popular that we sent 3000 in one shipment to New Mexico, and are sending over 2000 in a car to California.

DANZENBAKER HIVES AND SECTIONS.

As there is considerable interest manifest in Danzenbaker's 10-32 comb-honey hive, described in Jan. 15th GLEANINGS; and as Mr. Danzenbaker has arranged with us as exclusive manufacturers of his hives and sections, and he being situated so far out of the way, we have arranged to receive and execute orders from all who wish to try this hive. We do not advise any one to invest in large numbers this season till you have given a few a trial. After having tried them, if the claims for it are sustained we will no doubt catalog the hive next season.

There are those who desire to try the open-corner sections, $3\frac{1}{2} \times 5 \times 7$ to foot or $1\frac{1}{2}$, and use them on the regular hives. We are arranging to accommodate these, and will illustrate in next issue an arrangement to use these sections in the regular 8-frame Dove super. It is a section-holder with $\frac{1}{4}$ -inch bottom, $\frac{3}{8}$ -inch ends, to go crosswise the super, and hold 3 sections; 10 of these, with follower and wedge, fill a super; and to provide for the extra depth of the section a $\frac{1}{4}$ -inch rim may be placed on top or bottom of super, if you preserve a bee-space above the sections, or a $\frac{1}{2}$ inch rim if you wish the sections to come even with the top of super. Where paraffine paper is used to cover over sections, and they are used only one tier high, we think the $\frac{1}{2}$ -in. rim preferable. Tin strips will have to be nailed on the lower inside edge of side of super, instead of end, as at present, to support the section-holders. The open-corner sections, both $4\frac{1}{2} \times 4\frac{1}{2}$ and $3\frac{1}{2} \times 5$, are quoted in our March 1st catalog, which has been mailed to all GLEANINGS readers. These rims, tins, and section-holders we offer at following prices:

20-inch flat tins, 1c each; 60c per 100.
Rims, $\frac{1}{2}$ or $\frac{3}{4}$ inch deep, 3c each; 25c for 10.
Section-holders, 15c for 10; \$1.20 per 100.
Separators, $4\frac{1}{2} \times 12$, wood, 50c per 100; wax-paper, 40c per 100; separators, 5×12 , slotted, 60c per 100.
Waxed-paper quilts, 12×18 , 2c each; 10 for 15c.

ODD LOTS OF SECTIONS.

There have been so many of these lots disposed of from the list published Jan. 15th that we give here the list corrected to date:

75,000 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open top and bottom, polished, \$2.00 per 1000; 3000, \$5.00; 5000, \$8.00; 10,000, \$15.00.
12,000 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 4 sides, polished, same price.
7000 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 4 sides, white, same price.
20,000 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 4 sides, cream, same price.
875 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, 4-piece, Dovetailed, \$2.00 for lot.
2000 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ to ft., 4-piece, Dov'd, \$2.50 per 1000.
500 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, 4-piece, Dov'd, \$1.25 for lot.
500 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, cream, 75c for lot.
50 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, white, 20c for lot.
50 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 4 sides, white, 20c for lot.
50 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, white, 20c for lot.
375 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, white, 75c for lot.
90 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ to ft., open 4 sides, white, 30c for lot.
500 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, white, \$1.25 for lot.
1000 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, cut for glass, cream, \$1.50 for lot.
3625 $5\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, no openings, 1000, \$1.50; lot, \$4.00.
3000 $5\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, \$2.50 per 1000.
4625 $5\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, \$2.50 per 1000.
450 $5\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, closed-top, \$1.00 for lot.
9250 $6\frac{1}{2} \times 5\frac{1}{2} \times 2$, open 2 sides, \$2.50 per 1000.
300 $6\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, closed-top, 75c for lot.
100 $6\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, 25c for lot.
2500 $5\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, cream, \$1.50 per 1000, \$3.00 for lot.
1000 $6\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, cream, \$2.00 for lot.
500 $5\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, white, \$1.25 for lot.
120 $6\frac{1}{2} \times 5\frac{1}{2}$, closed-top, white, 35c for lot.
375 $5\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, closed-top, white, \$1.00 for lot.
75 $5\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, white, 25c for lot.
1870 $5\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, cream, \$3.00 for lot.
50 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, open 2 sides, white, 15c for lot.
50 $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$, closed-top, cream, 15c for lot.

WANTED.—To send per mail 50 White Plume celery plants for 25 cts., or 100 for 50 cts., as a sample, to any gardener.

JOHN CRAYCRAFT, Astor Park, Fla.

WANTED.—Wide frames with separators, 10-frame Simp. hives, sections, foundation, for seed potatoes, Irish Daisy, Orphan, R. N. Y. No. 2, Green Mountain, Early Maine, Early Northers. Price, 11b. 15c; bu. 45c; bbl. \$1.25.

L. D. GALE, Stedman, N. Y.

Alfalfa, Crimson, and Alsike

Clover Seed.

One or more lbs., by mail, 25 cts. Bushel, by freight or express, \$6.00. Peck or more at bushel rates.

DR. C. L. PARKER,

Onondaga, N. Y.

Please mention this paper.

A GREAT REDUCTION

in prices on *hives* and *sections*—see page 155, GLEANINGS, Feb. 15. Any change in prices made by the A. I. Root Co. we make also. We keep Root's goods: can fill your orders for them on short notice. Clover and Japanese buckwheat seed in stock. Send for 36-page catalog, free.

JOHN NEBEL & SON, High Hill, Mo.

Apiary of 90 Colonies,

1400 store combs, and every thing needed for business. Write for price and particulars.

H. F. DOLSON, New Paltz, N. Y.

Hives of Bees for Sale. I will sell a limited number of good colonies of bees this spring, in 10-frame Simplicity hives for \$4.00 each, and 8-frame at \$3.50 each. Queens bred from best imported stock.

JNO. A. THORNTON, Lima, Ill.

Wanted. 200 Colonies of bees or 4-frame nuclei, on Simplicity or Hoffman frames, in exchange for supplies to be shipped either from here or Medina, O. Send for catalog.

Geo. E. Hilton, Fremont, Mich.

YELLOWZONES.

Fellow Bee-keepers.—Just for a moment stop thinking of bees, and give a thought to a matter of good health. Yellowzones are not a new sort of bees, but are yellow tablets, a remedy that will cure the common and serious complaints of yourself and family—the most generally useful and satisfactory medicine that it has been my fortune to use in a practice of 11 years. I have often, even recently, after using it several years, been astonished at its marvelous power to heal. Families who have used it call for it repeatedly, until I find that, instead of prescribing for them as formerly, I am simply selling them Yellowzones.

Having been formerly a bee-keeper myself, and a subscriber to GLEANINGS since it was first issued by "Novice" as a quarterly, 23 years ago, I have determined to offer this remedy to the GLEANINGS family, feeling assured that you will be as pleased with it as I have been, in all fevers, headaches, colds, grip, rheumatism, and neuralgia; or, more comprehensively, for pain, fever, and nervousness in any disease—in very fact, a general-utility remedy for the every-day ills of humanity, and the most satisfactory remedy you ever used; and of especial value just now while la grippe is prevalent.

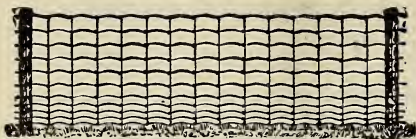
It is not a cheap remedy, but it cures, and cures rapidly. It is pleasant to take, and every dose counts. Moreover, we guarantee to refund the price to any one not entirely satisfied.

We will mail them in boxes of 18 at 25 cts.; 6 boxes for \$1.00 (not less than 6 at dollar rates); or if you scarcely have confidence in them, send 5 cts. for sample of six. We recommend the dollar purchase as most satisfactory. Let us show how well we can please you.

I take real pleasure in referring to Ernest R. Root as to my personal integrity.

W. B. HOUSE, M. D., Detour, Mich.

Please mention this paper.

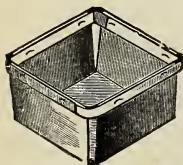


INFORMATION WANTED!

Anyone having knowledge of a general purpose wire fence, "just as good as the Page," will confer a favor by sending us full particulars. No hearsay evidence wanted, only actual tests count.

PAGE WOVEN WIRE FENCE CO., Adrian, Mich.

In responding to this advertisement mention GLEANINGS.



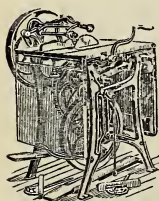
Fruit Packages of All Kinds.

Also

Bee-keepers' Supplies.

We allow a liberal discount on early orders. Why not send for your supplies now to save the discount and avoid the rush of the busy season? Catalog and price list free. Address

**Berlin Fruit Box Co.,
Berlin Heights, Erie Co., O.**



**ONE MAN WITH THE
UNION COMBINATION SAW**

Can do the work of four men using hand tools, in Kipping, Cutting off, Mitering, Rabbeting, Grooving, Gaining, Dadoing, Edging-up, Jointing Stuff, etc. Full Line of Foot and Hand Power Machinery. *Sold on Trial.*

**SENECA FALLS MFC. CO.,
44 Water St., Seneca Falls, N.Y.**

HATCH CHICKENS BY STEAM -

With the MODEL

Excelsior Incubator.

Simple, Perfect, Self-Regulating. Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other Hatcher. Lowest priced first-class Hatcher made. **GEO. H. STAHL,** 114 to 122 S. 6th St., Quincy, Ill.

Circulars free.
Send 6c. for
Illus. Catalogue.

BASSWOOD TREES!

Orders booked now for spring delivery for
Nursery-grown Basswood Seedlings,

5 to 9 inches high, at

\$2.00 per 100; 300 for \$5.00; \$15.00 per 1000.

Parties living east of the Mississippi River will be supplied direct from our nurseries in Ohio. Satisfaction guaranteed.

A. H. FITCH, 1509 Cooper St.,
Des Moines, Iowa.

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**MUTH'S HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS.**

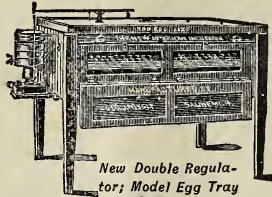
ROOT'S GOODS AT ROOT'S PRICES.

Bee-keepers' Supplies in general, etc., etc. Send for our new catalog. "Practical Hints" will be mailed for 10c in stamps. Apply to

CHAS. F. MUTH & SON, Cincinnati, O.

Do You Want An Incubator?

An Honest Machine,
Honestly Built,



Sold Under a Positive
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New Double Regulator;
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"NEW AMERICAN."

Want Our Catalogue?

It's a pretty book of 68 pages, finely illustrated; worth dollars to every poultryman. A 2c stamp gets it.

GEO. J. NISSLY, SALINE, MICH.

In writing advertisers please mention this paper

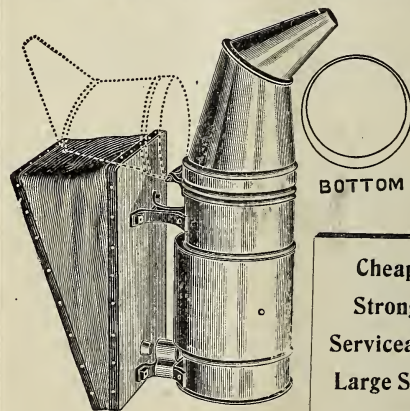
CASH FOR BEESWAX

Will pay 28c per lb. cash, or 30c in trade, for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 33c for best selected wax. Old combs will not be accepted under any consideration.

Unless you put your name on the box, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.

THE A. I. ROOT CO., Medina, O.

The New Cornell Smoker.



BOTTOM

**Cheap,
Strong,
Serviceable,
Large Size.**

JUST THE THING for those who want a first-class smoker at a medium price. Size of cup, 3 1/4 inches; curved nozzle, hinged so as to swing back; legs of malleable iron, secured by bolts. The blast is the well-known Cornell principle. Weight of smoker, only 20 ounces. Here is what one of our customers says of it:

The Cornell smoker is a Dandy with a big D. I have been using it to-day on the cross-st colony of bees I ever saw. I could drive a bulldog with it. **S. R. AUSTIN,** Amityville, N. Y., Oct. 15.

Price \$1.10, postpaid, or 85c if sent by express or freight with other goods.

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